

# South Asian Financial Systems at a Crossroad: Promoting Stability and Growth

November 11-12, 2009, Delhi

Proceedings



On behalf of



Federal Ministry  
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and Development



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## Preface

— The worst of the financial crisis may be over, but recovery is still fragile. India and its South Asian neighbours have rebounded fast from the depth of the global crisis. Initially, the region was hit extremely hard, with output in many countries shrinking by much more than the countries at the epicenter of the crisis. But starting in early 2009, economies in the region had begun to revive. Exports and industrial production had increased to pre-crisis level, financial pressures had eased and confidence had largely been restored.

Governments committed to economic and financial sector reform were re-elected, not only acknowledging the positive effects of liberalisation and reform that led to a deepening of domestic financial markets in the region, but also for their commitment to sustaining high economic growth. Development of financial markets remains a vital component of robust economic growth and poverty reduction. Yet, challenges to further deepening and development of financial markets in South Asia remain huge, but have to be overcome to promote growth and peaceful development.

In a broader context, the crisis of 2008/2009 has fostered an unprecedented readiness to apply unorthodox monetary and fiscal policies, to rethink paradigms of macroeconomic policies and to redesign at least parts of the institutional set up of the global financial architecture. The unanimous readiness to rapidly react to the challenges of the financial crisis and to formulate adequate government policies, as well as the smooth extension of the G20 meetings shows an encouraging commitment to collective action that gives hope for challenges probably still lying ahead.

It was against this setting, the 3rd ICRIER-InWent-conference debating “South Asian Financial Systems at a Crossroad: Promoting Stability and Growth” was held in mid-November 2009 in New Delhi. The themes of the two-day-debate were, respectively, “Financial Sector Reforms”, “Current Monetary Policy Issues”, and “International Financial Architecture”. The conference highlighted issues to design medium-term policies to keep the financial systems in South Asia resilient and stable, promote debate and foster appropriate policies and greater cooperation in the region and beyond.

Once again the conference brought together an excellent choice of representatives from key financial sector institutions like the International Monetary Fund (IMF), the Bank for International Settlement, The Reserve Bank of India, the European Central Bank, the Central Banks of South Africa, Malaysia, Indonesia and Sri Lanka, the Ministries of Finance from Germany and Pakistan and renowned research institutes from India, Germany and the US.



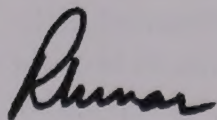
We were honoured that Mr. Ashok Chawla, Finance Secretary at the Ministry of Finance, shared his views with us in the opening day and Dr. Ashok Kumar Lahiri, Indian Executive Director at the Asian Development Bank, concluded the discussion.

The key messages of the conference were:

- despite signs of recovery it will take great and conscientious efforts by all governments to bring back the global economy to a pre-crisis level;
- enhanced policy coordination is required to ensure global financial stability as a precondition to revive growth;
- the momentum for policy change brought about by the crisis has to be used to implement the already agreed reforms in a consistent way;
- the only viable path for high, middle and low income countries alike is the safeguarding of financial stability to ensure growth and development.

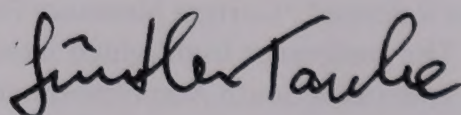
Once again, we would like to thank all chairs and speakers for their readiness to make themselves available for the fruitful debate that we enjoyed tremendously and hope to continue in an upcoming dialogue in November 2010 in India. These conferences are jointly prepared in a spirit of partnership and based on a shared aspiration to offer a high quality forum for debate for financial circles from the region and beyond. Besides, we do detect with great joy the slow build up of an international network of experts from the relevant institutions who share an interest in an intensified debate on topical issues with their peers from other parts of the world. Our conviction that informal fora like our annual conference can pave the way for shared problem perceptions and thus contribute to international consensus building still prevails.

As always, we would like to specially thank the German Ministry for Economic Cooperation and Development (BMZ) for their generous funding.



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# Summary report

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— For the third time the Indian Council for Research on International Economic Relations (ICRIER) and InWent – Weiterbildung und Entwicklung gGmbH, Capacity Building International, Germany brought together central bankers, policy makers and financial practitioners from the region with selected representatives from international organisations and academia for a dialogue on key issues of financial market reforms in South Asia, the scope of monetary policy in the current crisis and the global financial architecture agenda.

Policy makers, central bankers and supervisory authorities have made endeavours both to stabilise South Asian financial systems and to enable their economies to return to a sustainable growth path. Thereby, they face the challenge to provide sufficient liquidity and to prevent a credit crunch while avoiding too much regulatory forbearance which might threaten the soundness of financial institutions in the future. On the other hand, the international financial crisis could also be perceived as a chance insofar as it has already given rise to far-reaching reform proposals regarding rules, regulation and governance of the international financial architecture. In addition, the financial crisis could induce financial sector reforms in the future which would improve regulatory surveillance in South Asia and at the same time enable national and regional financial systems to operate more adequately as a shock absorbers.

The conference was structured into three sessions and a concluding high level panel discussion:

1. The future of financial sector reforms;
2. Strengthening regulatory surveillance;
3. Monetary policy against the backdrop of the global financial crisis;
4. The future of the international financial architecture.

The major lines of discussion across these sessions are presented in the following sections.



## Financial sector reforms

— Although exposure of South Asian financial actors to toxic assets has been low, the impact of the global financial crisis on the real economy is severe. After years of continued high growth, the economies of South Asia are now confronted with a slow-down of exports, a decline in industrial production and in remittances. One speaker reported on a dramatic decline of private investment and increased employment losses. Despite this economic setback participants expressed their conviction to continue the reform process which South Asian economies began in the 1990s. The nature and speed of financial sector reforms differed from country to country in South Asia; however, enhanced market regulation, the establishment of financial sector institutions and the accumulation of foreign exchange reserves had helped to mitigate the impacts of the crisis; at the same time functioning financial markets would facilitate price discovery, provide liquidity and reduce the cost of transaction.

While in particular stock markets have strongly developed and are well regulated within South Asia, there are still several weaknesses of South Asian financial sectors. Overall financial markets are segmented, display a high concentration of ownership and therefore a low level of competition; in addition, regulatory gaps and overlaps exist. The banking sector is still dominated by public banks which some participants perceive to be less efficient. A consolidation of the banking sector via mergers and acquisitions was perceived to be required to increase the size of the balance sheets and improve the provision of financial services. A specific area of concern was the corporate bond markets which are still underdeveloped throughout South Asia and are characterised by low liquidity and the lack of long-term maturities.

A discussion on the causes of the weak corporate debt market evolved. It was pointed out that it was difficult to mobilise sufficient demand in the domestic market for both government and corporate bond supply. In addition, prevailing short-term maturities discouraged companies to issue bonds as these maturities would not be consistent with their investment plans. Some participants argued that the establishment of long-term government and corporate debt markets required the development of strong domestic insurance and pension sub-sectors. Furthermore, the finance of public infrastructure via the bond market could promote the evolution of long-term maturities. Others indicated that increased opening-up of the capital account could create additional demand also for long-term bonds. However, it was argued that macroeconomic fundamentals of the countries, in particular relatively high domestic inflation rates, could limit the scope to liberalise more broadly.

The trade with derivative products is largely restricted and securitisation non-available in South Asian countries. Derivative products reveal expectations of market actors regarding the inflation rate and thereof derived key prices like the interest rate and exchange rate. How-



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ever, due to high leverage they might entail high volatility and are considered as amplifiers of boom-bust cycles. In India, only over-the-counter (OTC) interest rate derivatives and foreign exchange derivatives were recently permitted. One third of the rapidly increasing OTC derivatives market is un-collateralised; accordingly, this segment should obtain better surveillance and in general, the disclosure of information should be improved, including the funding source. It was concluded that standardised contracts in the OTC derivatives markets were preferable as highly customised contracts might be less transparent and more opaque regarding information, risks and real costs. Credit derivatives such as credit default swaps which have played a prominent role in the global financial crisis are not allowed in India.

Several participants also expressed the concern that the share of adult population in South Asia which has no access to the formal financial system and therefore does not directly benefit from the financial sector reforms is still significantly high; the majority of retail is not banked and the urban-rural divide persists. In that context the experience of Taiwan was cited, which used several methods, including moral persuasion, to convince foreign banks to open banks also in rural areas. In India foreign bank subsidiaries get permission in one-tier and two-tier cities only, when they open banks in areas which are under-banked or non-banked. It was pointed out, that unless financial inclusion was a reality this obligation would hold. Even so, it was stated that the focus should move away from bank-centred solutions to a broader and more comprehensive approach. Universal inclusion here would be understood not only as access to credit, but comprise broad financial services, e.g. savings, insurance and remittances transfer.

On that background several participants mentioned the lack of appropriate regulation for the development of non-bank institutions. Given the continuous growth of microfinance in South Asia and the broadening of the range of financial services that microfinance institutions increasingly offer, the need to integrate microfinance in the formal financial sector was broadly accentuated. However, one participant referred to the issue of a trade-off between regulation and costs; should the microfinance sector be more regulated, the costs for financial services, e.g. due to holding capital adequacy, would have to rise; on the other hand with low regulatory standards, there was a higher risk of over-indebtedness and bankruptcies by microfinance institutions. Several participants pinpointed to the fact that many venture capital companies intended to invest in microfinance institutions due to high profit expectations. Thus, the issue was not only about more regulation for microfinance institutions, but also about deregulation of interest ceiling of banks; if they would be allowed to charge higher interest rates in the rural sector, it could be expected that lending would be more viable and competition to bank the poor would increase.

A lively discussion took place on the question which approach regulators should adopt. A principle-based approach provides regulators and market agents with more operational flex-

ibility, is conducive to innovations and, if implemented correctly, sets incentives to reduce market failure costs. Moreover, such an approach could make allowances for the incorporation of changing social norms. However, participants also expressed their concern that in case of a principal-based approach the influence of the financial service industry would tend to increase, and due to the complex rules the response time of regulators on anomalies and irregularities would be longer. In any case, regulators needed to be broadly skilled and permanently up-to-date with financial innovations. In contrast, a rule-based approach with universal standards entails less forbearance and enables less regulatory arbitrage; supervisors' decision were based on transparent and reliable indicators, e.g. equity capital, non-performing loans or credit ratios, and not on their own assessment with the result that the decision could be taken quicker and without discretion. In general, many discussants opted for a principal-based approach rather than a rule-based approach, including behavioural regulation, although the most affected countries in the current financial crisis, the United States of America and the United Kingdom, followed a pure principle-based approach. Even so, when practical issues were considered, e.g. the eventual introduction of counter-cyclical capital adequacy ratios, a participant pinpointed to the problem for the regulators to decide, when there would be good times and when there would be bad times and recommended to use rather clear indicators.

With regard to the institutional setting of the regulatory framework several participants emphasised the superiority of an apex umbrella institution to various sector specific institutions; responsibilities were specified and also transparent for market actors. However, it might entail an information loss on the side of the central bank. The question arose how to merge effectively already existing sector specific institutions. With regard to the securities market, India opted against a merger and applied a fresh-de-novo approach instead; parliament adopted a new law and created a new institution, which was not tainted with the integration of several, formerly competing institutions from the very beginning. This approach should also be applied on the regulation of the corporate bond market rather than trying to reconcile a complex regulatory structure with overlapping jurisdictions. Others stressed a bi-polar approach to supervision with a division of labour between the central bank for macro-prudential supervision and securities and exchange commissions for the conduct of business.

In general, empirical evidence on the optimal institutional structure of regulatory bodies is ambiguous. Participants accentuated that for whatever solution countries opted, the central bank should have the function of surveillance of financial stability and systemic risk. To fulfil these tasks properly central banks needed to have sufficient capital at their disposal to bail-out banks. Furthermore, it was emphasised that there might be conflicts of interests if central banks were also responsible for managing government debt; accordingly, participants recommended to establish an independent Debt Management Office and institutionally separate these functions.



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In that context, the European example which follows more the bi-polar approach was of particular interest. The European Commission has proposed to create a set of European-wide institutions. The three sector-specific already existing committees will be transformed into three European Supervisory Authorities for banking, securities, insurance and pensions. The committees had no decision-making power and constituted rather a consultative process; in contrast the European Supervisory Authorities will be assigned legal personality with binding decisions for national authorities and market actors. In addition, there will be the European Systemic Risk Board, in which the European Central Bank together with the three European Supervisory Authorities and the European Commission as well as national central banks of the EU countries will be represented. The European Systemic Risk Board will have no decision-making power. The foundation of the new institutions had been a fast-track decision; only four months passed from the point of communication of the European Commission to the draft legislation. The pressure for a cross-border level playing field is higher in Europe than in other parts of world, as the majority of activities by European financial market actors are executed in other countries than their home country. It is expected that member states will agree on the creation of these new institutions until end of this year and will implement the accord during 2010. With that, for the first time ever supranational financial supervisory authorities by currently 27 states will be created.

## Current monetary policy issues

— Despite low or even non-existent exposure to toxic assets in emerging markets, asset prices and exchange rates came under pressure in the second half of 2008, resulting in a rise in interest rate and bond spreads as well as stock market corrections. At the same time international liquidity dried up and the opportunities for refinancing on the international capital markets became highly limited. While the emerging markets' banking sectors turned out to be relatively resilient, the real economy had to bear the major burden; in the wake of declining exports production, investment and employment have fallen and real growth is depressed. Some countries even slipped into a recession with economic contraction over several quarters. Central banks responded to that unfavourable situation by allowing sterilisation at reverse without resorting to restrictive measures. In contrast, the shortages of domestic liquidity which came along with the loss of foreign exchange reserves were counteracted by quantitative easing. Before the outbreak of the crisis some countries showed already domestic problems; however, these were accentuated by the global financial crisis. Others had rather favourable factors, e.g. large infrastructure programmes, which could cushion the impacts of the crisis on the real sector.

Central banks had multiple instruments including non-conventional measures at their disposal to increase liquidity in the markets, e.g. interest rate cuts, intensified open mar-



ket operations, provision of unlimited domestic liquidity, prolonged maturities of up to six months, specific market stabilisation funds. In the majority of the cases central banks recorded no balance sheet expansion as a result of quantitative easing, e.g. because the money multiplier increased. On the other side, central banks whose balance sheets are affected are not concerned with an eventual inflationary impact of the excess liquidity; it is assumed that it will not stay in the market during the recovery, but flow back to the deposit facility.

Central banks reported that despite high uncertainty the monetary transmission channels of the countries were by and large intact and functioned well, albeit in some countries with a time lag. For countries in which the access to finance is dominated by the banking sector, the functioning of the monetary transmission channel is essential in stress times. Some participants emphasised that if the channel is damaged, the real economy would be cut off financing. In addition, it was stated that a high share of foreign ownership in the domestic banking system would distort the monetary transmission channel, as foreign banks tend to operate less according to the host countries monetary policy, but adjust rather to the economic circumstances of their home country.

Monetary policy in emerging markets did show no forbearance; the liquidity expansion was covered by collateral and there was no dilution of collateral standards. Moreover, counter-parties had been only banks, while companies would not have been accepted. Some countries were even in the favourable position to offer additional funds not because of shortage of liquidity, but to reduce intermediating costs and thereby stabilise the real economy against the down-turn. In addition, some emerging market economies had pre-emptive measures in place already before the crisis which limited defaults and the impact of defaults on the financial sector. To these pre-emptive measures belong debt restructuring schemes for companies and households, financial guarantee schemes or credit laws with limits of mortgage payments that prevented lenders from lending recklessly. One major reason for the relatively good monetary and financial performance of these countries consists in the experience with former crisis which induced a development a macro-prudential policy in general and counter-cyclical measures in particular, including direct measures recognising the limited effectiveness of traditional monetary policy tools.

However, even if central banks have no explicit growth target, they face the challenge to reconcile growth requirements with price stability in the medium term. While growth warrants a delayed exit of quantitative easing, inflation warrants an early exit. If monetary policy withdraws liquidity too little, too late, then not only inflation, but also inflation expectations could rise, which are still relatively stable at the moment. Stock prices and housing prices have already shown an upward trend in emerging markets and could be taken as forerunners of a new asset price bubble. A commitment to currently low nominal

## Summary report

interest rates might induce higher expected inflation in the future and can even generate negative ex ante real interest rates. Accordingly, there was a broad consensus that inflation expectations should be anchored. On the other side, if monetary policy withdraws liquidity too early, too much, then cautious recovery could be stalled in an early stage of the cycle; together with an expected delayed stabilization and recovery in advanced countries, growth in emerging markets would be subdued and remained under the pre-crisis level. In addition, if central banks were opting for a more restrictive policy stance, either exchange rates would appreciate even more than they did in 2009 anyway, or alternatively capital inflows would increase. Participants considered a sustainable exit in principle feasible; however it depended on a proper timing and sequencing of withdrawing liquidity which could considerably vary across countries.

There was a vivid discussion on the issue of global imbalances which constituted a driving force for the global financial crisis. It was argued that some part of the global imbalances was sorted out by the crisis itself. However, with recovery domestic absorption in the United States would be restored and the issue become more pressing. A participant rose the question, why countries were purchasing low-return, foreign assets instead of carrying out high-yield, domestic investment. Others stressed that there is not much alternative to accumulate reserves; as a global insurance did not exist and refinancing on international capital markets during times of crisis was locked up; savings in the form of the world reserve currency were the only option. In this context, it was stated that global imbalances constituted a coordination failure which the international community has not yet resolved.

## International Financial Architecture

— Not only are the South Asian financial systems at a crossroad for promoting stability and growth, but the global financial system. The crisis has shown the flaws of the pre-crisis international financial market architecture. Emerging market economies and developing countries alike are adversely affected from the crisis although the causes of the crisis are to be found in advanced countries. Thus, there was a broad consensus that enhanced coordination was required to ensure global financial stability as a precondition to revive growth. Only individual and uncoordinated action might even increase financial protection.

There was no doubt that international fora, in particular the G20 and the Financial Stability Board (FSB), but also international institutions like the International Monetary Fund (IMF) were at the centre stage of these coordination efforts. However, many participants expressed their concerns regarding voice and participation of the rest of the world and the governance structure of the existing institutions. A second concern referred to the lack of enforcement authority by these international institutions. Agreements are not binding and



up to now moral suasion in the sense of name and shame seems to be the only instrument at their disposal. Thus, the success of international coordination depends on continuous consensus between member countries for a very long time. A crucial test for this procedure will be the first peer review of the FSB which shall be published in March 2010; it will evaluate the state of implementation of compensation principles. A participant argued from the perspective of a developing country which was not sitting at the table of the G20 or FSB, that there was no escape from the global fall-out than to protect itself by an aggressive accumulation of foreign exchange reserves given the absence of an international lender of last resort.

After the South-East Asian crisis there was a debate on the incorporation of the private sector into crisis resolution, in particular in the funding of the bail-outs. Now with the global financial crisis, the debate on incorporation of banks and institutional investors focus on the prevention of the next crisis, nonetheless governments all over the world have injected huge sums of money to stabilise these institutions and counteract the economic down-turn triggered by them. Some participants emphasised that the IMF will address these issues in its report to be finalised next year. In any case, the funds of the IMF had considerably increased and the recently created facilities could be used as a buffer for any emergency in the future. A global insurance with fees paid by the financial industry was considered as not feasible at this stage.

Of the broad reform agenda of the G20, discussions focused on counter-cyclical measures. Generally higher capital requirements for systemically important financial institutions, rising capital requirements for trading books, a limit for leverage as well as the change in compensation practices were considered as crucial reform measures. In that context participants referred to the ongoing investigation by the FSB and the Basel Committee which would address these issues more thoroughly at a later stage. If the counter-cyclical measures were not implemented or would not have the intended effect, it was emphasised that then traditional measures would be required, e.g. the limit of credit growth or the limit of the growth of banks.

Issues which are not under consideration in international fora, but were perceived to be important for global financial stability by participants were the sustainability of the US dollar as a reserve currency and the question of managed exchange rates between the major four currencies. Fluctuating exchange rates would not necessarily reflect economic fundamentals, but rather expectations which are endogenous, move prices and are moved by prices. It was pointed out that with increasing liberalisation during the last 40 years the real sector had to adjust to whatever prices the financial sector produced and that it would be the time to swing the pendulum back. Given the impossible trinity there was a discussion on whether managed exchange rates were actually feasible. A participant stressed that from



## Summary report

the perspective of the real economy the most expendable objective which could be given up were free capital movements. A financial transaction tax would not only be feasible as the settlement of international flows were taking place in big financial centres, but were increasingly gaining support by regulators, e.g. the Finances Services Authority (FSA) of the United Kingdom.

Concluding, there are many initiatives both globally and nationwide which are fed by a huge impetus, preparedness and prospect to learn from the crisis. An encouraging spirit of more and better regulation to rebuild domestic financial systems and to redesign the international financial architecture as to provide the public good financial stability has been induced by the crisis. However, with a declining impact of the crisis, there might be also a great intensity to go back to business as usual. Therefore, participants stressed the relevance to implement the already agreed upon reforms in a consistent way and to continue to strive for improvements in an internationally coordinated way. Moreover, there was a broad consensus that the only viable path for emerging markets and developing countries would combine financial stability with growth and development. Although there are signs of recovery, the world economy is still benefiting from huge economic stimulus packages and the current level of economic activity is still far from the pre-crisis level. National governments and the international community face huge challenges to achieve the growth requirements which need to be addressed in the coming years.



- 1 from left to right: Rajiv Kumar, Ashok Chawla, Günther Taube
- 2 from left to right: K. P. Krishnan, Rajiv Kumar
- 3 from left to right: Salman Shah, A. V. Rajwade, Hekinus Manao, Stefanie Wolff-Hamacher
- 4 Conference participants
- 5 Ashok K. Lahiri
- 6 from left to right: Deepak Mohanty, Raja Syamsul Anwar, Madhusudan Mohanty, Victor T. Munvama, Wolfgang M





From left to right: Wolfgang Modery, Günther Taube, Stefanie Wolff-Hamacher

From left to right: Rajiv Kumar, Ashok Chawla, Günther Taube, Benno Graw

From left to right: Günther Taube, Rajiv Kumar, Ashok Chawla

From left to right: Huzzatul Islam Latiffee, Madhusudan Mohanty

From left to right: Salman Shah, A. W. Rajawade, Hekinus Manao, Stefanie Wolff-Hamacher, Ashok K. Lahiri

From left to right: Benno Graw, Rajiv Kumar, Ashok Chawla, Günther Taube





12 from left to right: Wolfgang Modery, Benno Graw

13 from left to right: Ashima Goyal, Meir Sokoler, Hans-Bernd Schaefer, Dayanand Arora

14 Conference participants

15 from left to right: B. D. W. A. Silva, K. P. Krishnan

16 from left to right: Francis Rathiman, Ashima Goyal, Meir Sokoler, Hans-Bernd Schaefer, Dayanand Arora, Nicolas





From left to right: Francis Rathiman, Ashima Goyal, Meir Sokoler, Hans-Bernd Schaefer, Nicolas Véron, A. V. Rajawade, Meir Sokoler

From left to right: A. V. Rajawade, Meir Sokoler, Hans-Bernd Schaefer, Dayanand Arora, Nicolas Véron, Ashima Goyal

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## Future of Financial Sector Reform





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## The Future of Financial Sector Reforms: The Indian Experience<sup>2</sup>

### Abstract

— South Asian countries have a rich experience to offer on the path each of them have followed to achieve financial development of the order and magnitude that the other peer group countries may like to learn from. India is one of such economies whose financial development is keenly watched and debated. It is an economy that has shown enormous resilience even during the economically difficult times like the present one. Though its growth rate also dipped a little, India weathered the recent global financial crisis well. Contrary to the view that India weathered the crisis well because it was closed or insulated, this paper argues that India did so because it reformed and strengthened its financial markets. The reforms which began in 1991 have been deliberate and slow but they are irreversible. These reforms have integrated the Indian economy with the rest of the world. Increasing integration has brought new opportunities and also new challenges. It has made the task of sustaining high growth even more complex. This paper traces the financial development of India through the 1990s to the present, assessing the development of each segment of financial markets. In doing so, it highlights the dualistic development of financial sector in the country. It finally, makes an attempt to set a roadmap for future development of financial markets in the country.

<sup>1</sup> The views expressed here are the personal views of the author and do not necessarily represent the views of Government of India.

<sup>2</sup> This is a shorter version of paper titled “Financial Development in Emerging Markets: The Indian Experience” presented by the author at the ADBI/Brookings Cornell Conference in Washington D. C. on October 22-23, 2009.

## Introduction

— 1. Well functioning financial markets are crucial for the long-run economic growth of a country given the empirically tested positive link between the two. India is one of the five countries classified as big emerging market economies by the World Bank. This list, other than India, includes the other Asian giants China, the East Asian region of Indonesia, and countries like Brazil and Russia. The World Bank predicts that by 2020 the share of these five biggest emerging markets in world output will double to 16.1 percent from 7.8 percent in 1992<sup>3</sup>. The growing importance of India in the global economic scenario thus comes as no surprise as the world keenly watches the way its economy functions and its financial markets develop.

2. A well regulated free market economy is what India has always strived for and will continue to work for. The crisis has not deterred its Government from taking bold measures. In fact it is an appropriate time to continue with the reforms process and adapt to the changes the increasing integration with the world economy brings. Hence, it is important to look at the manner in which financial development has occurred in India and how it has been instrumental in shaping the contours of India's economic progress and in turn shaped by it. It will also be instructive to study what more India requires to do join in the league of countries known for their efficient financial markets.

3. The paper is organised as follows: **Section I** traces the financial development of India through the 1990s to the present. In doing so, it highlights the puzzle of financial sector development in the country. **Section II** attempts an explanation to this puzzle and sets the roadmap for future development of financial markets in the country.

## Section I

### Financial development: The Indian experience

— 4. India's growth story since the 1990s is well known. An average gross domestic product (GDP) growth rate of 7.2 percent was achieved over 2000-01 to 2008-09 with an increasing share of services in GDP. This high GDP growth was driven by domestic demand – both consumption and investment. The average savings rate of 30.3 and investment rate of 30.4 as percentage of GDP, over 2000-01 to 2008-09 was also considered as high by international standards. With acceleration in economic growth and a significant increase in sav-

<sup>3</sup> Global Economic Prospects, 1997, World Bank.



## Future of Financial Sector Reform

ings and investments in the country; a discussion on role of finance becomes important as this can have important policy implications. To be able to appreciate the linkage between growth and financial development, we first trace out the historical evolution of financial markets in the country.

### Historical evolution of financial markets

— 5. The financial system and infrastructure of a country, at a given point in time, is the result of its own peculiar historical evolution. This evolution is shaped by the continuous interaction between all the players in the system and public policy interventions over time. These policy interventions are also a reflection of the thinking of regulators and governments of the time as to the acceptable and desirable balance between innovation and stability, private and public interest.

The evolution of Indian financial markets and the regulatory system has also been along a similar path. Most financial service providers and their regulatory agencies are now in place. The role of regulators has evolved over time from that of an instrument for planned development in the initial stage to that of a referee of a relatively more modern and complex financial sector at present.

6. Over this period, a variety of financial sector reform measures have been undertaken in India with many important successes. An important feature of these reforms has been the attempt of the authorities to align the regulatory framework with international best practices keeping in view the needs of the country and domestic factors. In the following paragraphs we make an assessment of growth and development in each of the segments of financial viz. equity, debt, banking, insurance and foreign exchange.

### Securities Markets

— 7. Though India has, in the Bombay Stock Exchange (BSE), one of the oldest stock exchanges in Asia and the world, the modern securities market history really starts only in the 1990s. In this period from the mid 1990s the Indian securities market has many 'firsts' to its credit. It established one of the first demutualised stock exchanges in the world. All stock exchanges in India, today, are corporatised and demutualised. The Indian securities market was the first to use satellite based communication technology for securities transactions. It was the first to introduce Straight Through Processing (STP) in securities transactions. The growing number of market participants, the growth in volumes in securities transactions, the reduction in transaction costs, the significant improve-

ments in efficiency, transparency and safety, and the level of compliance with international standards have earned for the Indian securities market a new respect among the securities markets in the world.

8. In addition to these, thanks to the massive liberalisation ushered in 1992, the securities market in India have grown exponentially as measured in terms of amount raised from the market, number of market participants, the number of listed stocks, market capitalisation, trading volumes and turnover on stock exchanges, and investor population.

9. Government and corporate sector are seen to be increasingly relying on securities markets for their funding requirements. During 2008-09, the government<sup>4</sup> and the corporate sector together raised a sum of Rs (Indian rupees) 36,65,930 mn (USD 72 bn)<sup>5</sup> from the market. The assets under management of mutual funds stood at Rs.41,73,000 mn (USD 81 bn) at the end of March 2009. The net cumulative investment by Foreign Institutional Investors (FIIs) was US \$56.7 billion as at end of March 2009. The exchanges reported a turnover of Rs.3,85,24,900 mn (USD 756 bn) in the cash segments in 2008-09. The two depositories have a total of 15.2 mn investor accounts at the end of March 2009. On the same date there were 9.82 million clients registered with the National Stock Exchange (NSE)<sup>6</sup> for undertaking transactions on the exchange. An estimated 32 million investors transact in securities market.

## Equity derivatives markets

— 10. India's tryst with equity derivatives began only in this century. Trading first commenced in Index futures contracts, followed by index options in June 2001, individual stocks options in July 2001 and single stocks futures in November 2001. Since then, equity derivatives have come a long way. Expanding list of eligible investors, rising volumes and the best of risk management framework for exchange traded derivatives have been the hallmark of the journey of equity derivatives so far.

11. India's experience with the launch of equity derivatives market has been extremely positive. The derivatives turnover on the NSE has surpassed the equity market turnover within four

4 Central and State Government securities

5 All conversions from Indian Rupee to USD for a particular Financial Year (FY) are made at the exchange rate prevailing on 31 March of that FY.

6 NSE is a leading stock exchange of the country accounting for 70 percent of total turnover in the cash segment and 99 percent of turnover in the derivatives segment in 2008-09.



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years of introduction of derivatives. The turnover of derivatives (on NSE and BSE) increased from Rs. 40,380 mn (USD 0.87 bn) in 2000-01 to Rs. 11,02,27,482 mn (USD 2163 bn) in 2008-09. In terms of the number of single stock futures contracts traded in 2008, NSE held the second position in the world. It was fourth in terms of number of stock index options contracts traded and third in terms of number of stock index futures contracts<sup>7</sup>. In terms of traded volumes in futures and options taken together, NSE has been improving its worldwide ranking from 15th in 2006 to 9th in 2007 and to 8th in 2008 (according to Futures Industry Annual Volume Survey, March 2009). The traded volumes in the derivatives segment of the NSE saw an increase of 55.4 percent in 2008 over the figure in 2007.

12. Thus, India is one of the most successful developing countries in terms of a vibrant market for exchange-traded equity derivatives. However, on the general issue of risk mitigating products, of which equity derivatives are one example, it is poignant to note that innovations have appeared in the country after years of toil and wait. Stock index futures took five years to be offered to the investors, from the time they were conceived; Exchange-Traded Fund for Gold again took four years to become a reality; interest-rate derivatives though launched in 2003 did not take off mainly due to constraints on the participation of banks in this market and had to be re-launched in 2009. These experiences highlight the adverse environment for financial innovation in the country. The market regulators should aim at establishing rapid and simplified product approval processes which is supportive of innovation.

13. Another issue which deserves attention for further development of these markets is the need to remove segmentation of markets within exchanges. As an example, the equity spot market is one 'segment' and the equity derivatives market is another 'segment'. The currency derivatives are yet another segment. Financial firms have to obtain separate memberships in each segment and suffer from a duplication of compliance costs. This separation reduces the ability of a clearing corporation to know the full position of a financial firm or its customer, and do correct portfolio risk calculations.

### Debt markets

#### A. Money markets

14. In comparison to early 1990s, money markets are currently better in terms of depth and following various policy initiatives, activity in all the segments has increased significantly,

<sup>7</sup> These rankings are based on the World Federation of Exchanges (WFE) Annual Report and Statistics 2008

especially during the last three years . With the development of market repo and collateralised borrowing and lending obligation segments, the call money market has been transformed into a pure inter-bank market from August 2005. The uncollateralised overnight transactions are now limited to banks and primary dealers in the interest of financial stability.

15. Volatility in call rates has declined over the years, especially after the introduction of the Liquidity Adjustment Facility. Also, there has been a reduction in bid-ask spread in the overnight rates which indicates that the Indian money market has become reasonably deep, vibrant and liquid. During April 2004 – February 2007, the bid-ask spread has varied within a range of -0.37 to +1.32 basis points with an average of 16 basis points and standard deviation of 11 basis points.

16. However, though the money market is free from interest rate ceilings, structural barriers and institutional factors continue to create distortions in the market. Apart from the overnight inter-bank (call market) rate, the other interest rates in the money market are sticky and appear to be set in customer markets rather than auction markets. A well-defined yield curve does not therefore exist in the Indian money market.

## **B. Government securities markets**

— 17. As a result of the developmental measures undertaken, the volume of transactions in government securities has increased manifold over the past decade. Also its investor base, which was largely determined by mandated investment requirements before reforms, has expanded with the voluntary holding of government securities. Accordingly, the share of commercial banks has declined.

18. However, a number of problems continue to confront the government securities markets. A benchmark yield curve for government securities has not, as yet, emerged. Liquidity of the markets is poor, which impedes the development of a yield curve that can be reliably used to price all cash flows off the curve. Only a handful of securities accounts for the bulk of trading. There are isolated pockets of liquidity for very short term and very long term securities. Further, there are limits on Foreign Institutional Investors' (FII) investments in government securities (USD 5 bn presently), which limit voluntary demand for them from abroad.

19. A key issue confronting the development of government securities market is that the Central Bank is also the manager of public debt in the country which leads to a series of conflicts. There is, to begin with, a conflict of interest between setting the short term interest rate and selling bonds for the government. Further since the Central Bank



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administers the operating systems for the government securities markets, it follows that the owner/administrator of these systems is also a participant in the market. A vibrant government securities market requires professional capability of an independent Debt Management Office (DMO) for engaging with the market, building a long-term relationship with investors, and obtaining money from the market at a good price. The objective of the independent DMO should be to minimise the medium-long term cost of the debt with due regard to the risks in the debt portfolio, besides promoting development of the domestic debt market.

### C. Corporate debt markets

20. The private bond market capitalisation as percentage of GDP was 0.4 percent for India, in 2001, increasing to 2.67 percent in 2007. The public bond market capitalisation as percentage of GDP was 30 percent and 31 percent for these years respectively. These figures indicate underdeveloped bond markets when compared to other emerging markets with similar financial sector depth. A comparison of the size and composition of the domestic debt market in India with select emerging market countries puts India at the bottom in terms of private bond market capitalisation as percentage of GDP and ahead of South Africa and China in terms of public bond market capitalisation as percentage of GDP<sup>8</sup>. In India financial institutions and state government guaranteed instruments dominate most of the issuance in the corporate bond market.

21. A well developed corporate bond market is essential for financial system efficiency, stability and overall economic growth. A well functioning bond market provides for financial diversification and facilitates necessary financing for corporates and infrastructure developers. However, this market remains practically non-existent in India. Most of the large issuers are quasi-government, including banks, public sector oil companies, or government sponsored financial institutions. Of the rest, a few known names dominate. There is very little high yield issuance, and spreads between sovereign debt, AAA debt and high yield debt are high in comparison to other markets. Very few papers trade on a regular basis. Trading in most papers dries up after the first few days of issuance, during which the larger players “retail” the bonds they have picked up to smaller pension funds and cooperative banks. Most trading is between financial institutions.

22. Lack of depth in the government bond market and the absence of a yield curve for government bonds which could serve as a benchmark for corporate bonds; cumbersome

<sup>8</sup> According to World Bank Financial Structure database.

primary issuance mechanism (to some extent addressed by recent changes in the regulations by the market regulator, Securities and Exchange Board of India (SEBI)); absence of sufficiently diversified long term investors and chronic illiquidity caused inter-alia by absence of derivative instruments are some of the factors leading to underdeveloped bond markets. Also, there are limits on Foreign Institutional Investors (FII) investments in corporate debt (USD 15 bn presently), which are reviewed periodically. There is need to liberalise the bond markets opportunistically by expanding FII limits more when other forms of capital inflows are at a low ebb.

## Banking Sector and Insurance Sector

■ 23. Financial sector reforms have had major impact on the overall efficiency and stability of the banking system in India. A select few, which are critical, are as follows:

- *Capital*: The average Capital to Risk (Weighted) Assets Ratio (CRAR) of all banks increased from 9.2 percent as on March 31, 1994 to 13.2 percent as on March 31, 2009. With the global range of CRAR being 10.2 percent - 13.2 percent, the capital adequacy of Indian banks is comparable to those at international level.
- *Asset quality*: Since RBI introduced the objective criteria for identification of NPAs (non performing assets) in 1992-93, while the gross NPAs, as a proportion of gross advances, has been declining steadily and distinctly over the years, the level of gross NPAs in absolute terms has also decreased over the recent past. The percentage of gross NPAs to gross advances for the banking system, which was 14.4 percent in March 1998 decreased to 2.33 percent in March 2009. During the same period, the percentage of Net NPAs to Net Advances declined from 7.3 percent to 1.05 percent. The non performing loans to total loans was 2.3 percent in 2008 for India, lower than most of the other emerging markets economies.
- *Profitability*: The reform measures have also resulted in an improvement in the profitability of banks. The Return on Assets (RoA) of all banks rose from 0.4 percent in the year 1991-92 to 1.0 percent in 2008. Comparing the RoA with other emerging markets, the RoA has been in the range 0.1 to 2.1 percent, Indian banks are well placed.

24. But these profitability figures mask an important fact that India is hugely under banked and hence these perhaps represent monopoly rents. India's poor, many of who work as agricultural and unskilled/semi-skilled wage labourers, micro-entrepreneurs and low salaried worker, are largely excluded from the formal financial system. Over 40



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percent of India's working population earn but have no savings. The population served per bank branch in rural India is approximately 18,000 while in urban India it is 5000.

25. Financial sector policies in India have long been driven by the objective of increasing financial inclusion, but the goal of universal inclusion is still quite some distance away. The past strategy for expanding the reach of the financial system relied primarily on expanding branching, setting up special purpose government sponsored institutions and setting targets for credit to broad categories of the excluded. Its success has been mixed, and has been showing diminishing returns.

26. A new approach to financial inclusion is needed that builds on the lessons of the past. It needs to be recognised that financial inclusion is not only about credit, but involves providing a wide range of financial services, including saving accounts, insurance, and remittance products. Efforts at financial inclusion need to move away from sectors to segments of people that are excluded. Past efforts have focused largely on agriculture. As the Indian economy diversifies and more people move away from farming, there is an urgent need to focus on other segments as well, for instance the poor in urban areas. Commercial viability of reaching to the poor needs to be increased. Product innovation, organisational flexibility, and superior cost efficiency are essential in reaching the excluded and offering them financial services that they will want to use. Competition, technology, as well as the use of low-cost, local organisations for outreach will have to play a much greater role in any such strategy.

27. Growth in insurance industry has been spurred by product innovation, vibrant distribution channels coupled with targeted publicity and promotional campaigns by the insurers. Innovations have come not only in the form of benefits attached to the products, but also in the delivery mechanism through various marketing tie-ups both within the realm of financial services and outside. All these efforts have brought life insurance closer to the customer as well as made it more relevant. The insurance companies are increasingly tapping the semi urban and rural areas to take across the message of protection of life through insurance cover. The insurers have also introduced special products aimed at the rural markets.

28. In terms of insurance penetration, India fares better than most emerging markets. The participation of low-income groups in life insurance, the second most preferred savings instrument after bank savings deposits, is still very limited. One-third of all paid workers have some life insurance protection. However, only 14 percent of people in the lowest income quartile and 26 percent in the second quartile have life insurance as against 69 percent in the highest income quartile. While the elaborate sales and distribution model has contributed to the popularity of life insurance, this has come at con-

siderable cost by way of high commissions and a large percent of lapsed policies<sup>9</sup>. Policy lapses are low only in the highest income quartile, while in all other segments at least 20 percent respondents have had a policy lapse. The penetration of non-life insurance products is negligible. For example, only one percent of the population appears to have medical insurance. Thus, there is clearly a need to focus on these areas to expand insurance cover for the Indian population.

29. The insurance industry also continues to face some basic problems. One of these is that a large part of sale of “insurance” products is merely tax arbitrage, where a fund management product is given preferential tax treatment under the garb of a minimal insurance character. Another issue is that much of the growth in insurance penetration is as a result of selling of products such as the Unit Linked Insurance Plans (ULIPs) which is essentially a mutual fund product. The relatively better performance of ULIPs could be attributed, inter alia, to higher commission in insurance ULIPs than for mutual fund products. Thus, there is a blurring of products wherein financial instruments are partaking of multiple characteristics of investment, pension and insurance etc. Some changes in regulatory architecture would be necessary to address this, on which we focus later in the paper.

## Section II

### The puzzle of Indian financial sector reforms and the roadmap for the future

— 30. Having listed above the story of growth and development of each of the segments of financial markets in India, one cannot escape the fact that it throws up two contradictory developments, viz. the dramatic transformation of the stock markets segment but relatively less development of other segments of the markets. This is also highlighted by the Financial Development Report, 2009, which notes that while India has done well in terms of nonbanking services activities and creating efficient derivatives and foreign exchange markets; the developments in banking sector services, bond markets, retail access to finance and general business environment leaves much to be desired.

<sup>9</sup> For traditional life insurance products, a policyholder typically loses the entire investment if the policy lapses within the first three years. After that, only the surrender value is paid in the case of a lapse, which is less than 35 percent of the total premia paid. IRDA reported that almost 5 percent of life insurance policies lapsed between 2000 and 2005. This number was as high as 16 percent among private providers, due to higher contribution of ULIPs and aggressive selling policies. Source: ISEC Securities, “Indian Life Insurance”, December 7, 2007, pp 43.



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31. The recently submitted report of the Government Committee on Financial Sector Reforms (CFSR) summarises the state of various segments of the Indian financial markets in terms of immediacy, depth and resilience<sup>10</sup> as follows:

Table  
Liquidity of Indian financial markets

Market	Immediacy	Depth	Resilience
Large cap stocks/futures and index futures	Y	Y	Y
Other stocks			
On the run government bonds	Y	Y	
Other government bonds			
Corporate bonds			
Commercial paper and other money market instruments			
Near money options on index and liquid stocks	Y		
Other stock options			
Currency	Y		
Interest rate swaps	Y	Y	
Metals, energies and select agricultural commodity futures	Y		
Other commodity futures			

<sup>10</sup> Immediacy refers to the ability to execute trades of small size immediately without moving the price adversely (in the jargon, at low impact cost). Depth refers to the impact cost suffered when doing large trades. Resilience refers to the speed with which prices and liquidity of the market revert back to normal conditions after a large trade has taken place.

32. In the view of the Committee, resilience is found in the large stocks, their stock futures and the index futures. All other markets in India lack resilience. Depth is found, in addition, with on-the-run government bonds and interest rate swaps. Immediacy is found in a few more markets. A well functioning market is one which has all three elements. India has only one market where this has been achieved, for roughly the top 200 stocks, their derivatives and index derivatives.

33. The CFSR further notes that when a financial market does not exist, or is inadequately liquid to meet the requirements at hand, or suffers from deviations from fair price, this constitutes market incompleteness. Economic agents are unable to enter into transactions that they require for conducting their optimal plans. Market incompleteness has many destructive implications for resource allocation and ultimately GDP growth.

34. It is pertinent to try to look for answers to this puzzle of the Indian financial sector reforms by understanding what we did right in reforms in the stock markets and what went wrong in other areas of finance. This will then help us chart out a road map for next generation financial sector reforms in the country. This is attempted in the following section.

35. Some of the other reasons for different pace of development of different sectors of the financial markets can be listed as:

- *Banning of products and markets*: The policy environment that comes in the way of development of liquid and efficient markets is the banning of products and markets. As an example, products such as exchange traded currency futures (banned till permitted from August 2008) and commodity options are banned. A market that is banned can obviously not attain liquidity or efficiency. Equally problematic, a missing market can hamper the efficiency of other markets also. For example, an efficient and deep corporate bond market is still missing in India.
- *Restricted participation*: In many cases, while an outright product ban is not in place, there are restrictions on participation. These include outright bans or regulatory restrictions on some kinds of activities (for example, banks are prohibited from adopting long positions on interest rate futures) or quantitative restrictions (for example, all FIIs put together are required to keep their aggregate ownership of corporate bonds below USD 15 billion). The equity market – the only element of Indian finance which has achieved immediacy, depth and resilience – has few restrictions on participation in both spot and derivatives markets (it does restrict foreign individual investors, and some institutional investors such as hedge funds). As a consequence, the equity market, especially for large stocks, has developed a distribu-



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tion capability which reaches millions of market participants around the world. All kinds of economic agents come together into a unified market to make the price. Competitive conditions are upheld; for the most part, no one player is large enough to distort the price. The diverse views and needs of the diverse array of participants impart resilience, depth and market efficiency. Competition between NSE and BSE has helped to improve technology and reduce costs. The most important feature of the equity market has been free entry and exit for financial firms that become members of NSE and BSE, and the free entry and exit for the economic agents who trade on these markets through exchange members. Such an open environment is of critical importance for achieving liquidity and efficiency in all the other elements of Indian financial markets.

## Way forward

— 36. In a growing and increasingly complex market-oriented economy such as India's, with increasing integration with global trade and finance, our financial system would be an important element in the country's future growth trajectory. Further steps are required to make the financial markets deeper, more efficient and well-regulated. In this direction, two important Government Committees, the High Powered Expert Committee on Making Mumbai an International Financial Centre (HPEC on MIFC) and High Level Committee on Financial Sector Reforms (CFSR) have charted out the road ahead for India's financial system to prepare it for the challenges of the future. Despite differences in their scope and terms of reference, the two reports have a common underlying term of reference, viz. to recommend next generation of financial sector reforms for India. The two reports emphasise that recognising the deep linkages among different reforms, including broader reforms to monetary and fiscal policies, are essential to achieve real progress. The reports outline the key elements of a financial system that India will need in its quest for higher growth over the next few years. Some steps in this direction have already been taken. India has introduced new products on its exchanges. These include exchange traded currency and interest rate futures. There is a lot of talk about introducing credit derivatives. There are views that in the present scenario there is a fear of complex financial products. But the complexity of the products should not deter us from making a beginning. Everybody has a responsibility to explain the complexity of the products to the customers, so that the customers can choose the products that he or she desires. There is a need to draw the right lessons from developments around the world. There is also a need to innovate, while at the same time it must be ensured that the complexities are understood, the risks are mitigated and there is reward for those who are willing to take the risk. It must be realised that all financial innovation is not necessarily destructive or inimical to financial stability.

Some of the other reform areas suggested by the above mentioned two Government committees are as follows.

- 37. Regulatory structures need to be streamlined to avoid regulatory inconsistencies, gaps, overlap, and arbitrage. Steps in this direction should include a reduction in the number of regulators, defining their jurisdiction wherever possible in terms of functions rather than the forms of the players, and ensuring a level playing field by making all players performing a function report to the same regulator regardless of their size or ownership. There is need for strengthening and consolidation of regulatory structures to deal with large complex, systemically important, financial conglomerates on the one hand, and with the consumer on the other. It is important for us to examine practices that are evolving in other jurisdictions and formalise a structure for handling issues of financial stability.
- 38. Various segments of the financial markets can develop and thrive only when participation in them is not artificially constrained. The most successful parts of Indian finance at present are those in which non-institutional participants have taken a lead and engaged in speculative price discovery. This large mass of retail participation in financial markets is a unique edge that India has when compared with other international financial markets. However, considering that we are striving to develop Mumbai as an International financial centre, the capabilities and strength of institutional investors also need to be harnessed. This class of investors brings with them sophisticated analytical tools in quantitative trading systems, pools of capital and help link Indian finance with the rest of the world. Thus, the strategy should be to remove the constraints on the institutional sector to allow them to reap the benefits of financial market innovations and in turn assist these markets with depth and liquidity. The regulators should move gradually to a “prudent man” principle where the institutional investor is allowed to exercise judgment based on what a prudent man might deem to be appropriate investments.
- 39. Lack of sufficient competition in parts of the financial services industry, pervasiveness of public ownership and over compartmentalisation of sub-sectors have resulted in sub-optimal performance by existing market players. Competition needs to be across larger, more capable players rather than among a plethora of small weak, undercapitalised players that cannot capture economies of scale or make the kinds of investments in people, training, technology and research into product development that supports innovation.

A license to operate in a certain area of Indian finance is, all too often, a safe sinecure with stable profits and a near-zero probability of death. There is therefore little incentive



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to innovate to remain competitive. For a shift into a high-innovation regime there is need to introduce competition by removing the entry barriers and protectionism in domestic finance along with facilitating investments by international financial institutions in the country.

40. Financial stability is a multi agency function. Though not explicitly located by law in any agency, the task of maintaining financial stability in India, at the moment, lies with the inter-regulatory body – the HLCCFM (High Level Coordination Committee on Financial Markets). It is chaired by the Governor of Central Bank and has members of other regulatory agencies. The roadmap for next generation financial sector reforms envisages giving more teeth to the HLCCFM as well as strengthening it. Also, greater need for more organised inter-regulatory coordination and furthering the reforms agenda draw attention to the need for strengthening this present inter-regulatory coordination mechanism.

## Conclusion

— 41. India's road ahead is full of challenges. The chief amongst them is to take the economy back to the 9 percent p. a. growth path. Along with challenges there are opportunities for development and opportunities to further the reform process. The achievement of financial inclusion while sustaining economic growth and maintaining financial stability is challenging but not impossible as these three objectives are not in contradiction. What India needs is the right set of reforms to achieve them.





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## Global Financial Crisis and Monetary Policy Response in India

— In my talk, I will try to address the following set of questions: How and why was India impacted by the global financial crisis? How did monetary policy respond to the crisis? What was the impact of the policy on the Reserve Bank's balance sheet? How did monetary transmission work? I will conclude by highlighting the challenges of exit from monetary easing.

The subprime crisis that emerged in the US housing mortgage market in 2007 snowballed into a global financial crisis, leading to a global economic recession. The financial landscape has changed significantly after the collapse of Lehman Brothers in September 2008. An important lesson learnt, post-September 2008, is that irrespective of the degree of globalisation of a country and the soundness of its domestic policies, a financial crisis could spread to every economy.

The international transmission of liquidity shocks was fast and unprecedented. While falling asset prices and uncertainty about valuation of the traded instruments affected market liquidity, failure of leading global financial institutions and the deleveraging process tightened the market for funding liquidity. Given the growing risk of illiquidity cascading into solvency problems, credit and quantitative easing acquired priority in most central banks. The contagion from the global financial crisis warranted swift monetary and fiscal policy responses with a view to ensuring orderly functioning of markets, preserving financial stability, and moderating its adverse effects on growth. While the global financial markets have since started showing signs of stabilisation, credit flow in advanced markets is yet to recover.

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## How was India impacted by the Global Financial Crisis?

### Transmission of shocks to India

— There were two distinct phases in 2008-09 during which the transmission of global shocks – through trade, finance and expectations channels – posed different but significant challenges for the Reserve Bank. In the first half of the year, the world experienced simultaneous increase in both food and commodity prices, and there was a return of inflation after a phase of “great moderation”. Dealing with supply side sources of inflation posed challenges for the conduct of the Reserve Bank’s monetary policy, particularly in the face of signs of cyclical slowdown on the one hand and the risk of spiralling headline inflation on the other. In the second half of the year, the global financial crisis and the subsequent global recession dramatically changed the nature of the challenge emanating from globalisation.

### Impact on the Financial Markets

— Post-Lehman, the impact of the global financial crisis unfolded in the Indian financial markets, through reversal of capital inflows and significant correction in the domestic stock markets on the back of sell-off in the equity market by the foreign institutional investors (FIIs). The withdrawal of funds from the Indian equity markets and reduced access of the Indian entities to raise funds from the international markets put significant pressure on the dollar liquidity in the domestic foreign exchange market. These developments created adverse expectations on the balance of payments (BoP) outlook leading to downward pressures on the Indian rupee and increased volatility in the foreign exchange market.

The banking sector was not affected as it had hardly any direct exposure to subprime assets. Moreover, banks were well-capitalised and inherently sound. The reduced foreign funding and the subdued domestic capital market, however, put pressure on some segments of the financial system such as non-bank financial companies (NBFCs) and mutual funds. Mutual funds were dependent on corporates for bulk funds. As liquidity needs of the corporates increased, redemption pressures on mutual funds rose. This translated into liquidity problems for NBFCs as mutual funds were important source of funds to NBFCs. Further, the demand for bank credit also increased as external sources of credit dried up for corporates. Consequently, the pressure for funding liquidity came to rest on the banks. Against this background of increase in demand for liquidity, the Reserve Bank had to step in with liquidity augmenting measures such as cuts in cash reserve ratio (CRR) and increase in refinance facilities. Aided by liquidity easing measures by the Reserve Bank, the banks continued to expand credit and meet the funds requirements of mutual funds and NBFCs. Initially, though bank credit could not fully offset the shortfall in credit from other sources.



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Subsequently, demand for bank credit came down as the contagion transmitted to the real economy and eroded private consumption and investment demand.

## Impact on the Real Economy

Under the impact of external demand shocks, the Indian economy witnessed moderation in growth in the second half of 2008-09 in comparison with the robust growth performance in the preceding five years (8.8 percent per annum). The deceleration in growth was particularly noticeable in negative growth in industrial output in Q4 of 2008-09 – a decline for the first time since the mid-1990s (Table 1). This was on account of erosion of external demand which affected industrial performance – a reflection of increasing globalisation of the Indian industry.

**Table 1**  
**Key macroeconomic indicators - India**

Indicators	2008-09: Q1-Q4				2009-10: Q1-Q2	
	Q1	Q2	Q3	Q4	Q1	Q2
Real GDP Growth (Y-o-Y) (%)	7.8	7.7	5.8	5.8	6.1	-
Industry	5.1	4.8	1.6	-0.5	4.2	-
Services	10.0	9.8	9.5	8.4	7.7	-
Inflation (Y-o-Y) (%)						
WPI	12.0	12.1	5.9	0.8	-1.1	-0.2
CPI-Industrial Workers	7.7	9.8	9.7	8.0	9.3	11.8
Money and Credit Growth (Y-o-Y) (%)						
Broad Money (M3)	21.5	19.5	19.9	18.6	20.2	19.7
Banks Credit	24.5	23.5	22.7	16.4	15.1	14.1
Interest Rates (%)						
Overnight (call) money	6.8	9.5	7.8	4.2	3.2	3.2
10-year g-sec	8.4	8.5	5.9	6.6	6.8	7.1
Foreign Trade						
Export Growth (%)	37.6	39.5	-15.0	-22.3	-30.0	-21.0
Import Growth (%)	31.6	60.5	2.1	-29.1	-35.0	-33.6
Balance of Payments (US \$ billion)						
Trade Deficit (-)	-31.4	-38.7	-34.7	-14.6	-26.0	-
Current Account Deficit (-)	-9.0	-12.5	-13.0	4.7	-5.8	-
Net Capital Flows	11.1	7.6	-4.3	-5.3	6.7	-
Reserve Outstanding	312.1	286.3	256.0	252.0	265.1	281.3

The transmission of external demand shocks was swift and severe on export growth, which deteriorated from a peak rate of about 40 percent in Q2 of 2008-09 to (-) 15 percent in Q3 and further to (-) 22 percent in Q4 – a contraction for the first time since 2001-02. Concurrently, domestic aggregate demand also moderated resulting from sharp deceleration in the growth of private consumption demand. In order to respond to the slowing demand, fiscal stimulus measures were undertaken by the government which included both tax cuts and increase in expenditure. This raised the fiscal deficit of the Central Government by 3.5 percent of GDP in 2008-09. Consequently, the growth in government final consumption expenditure registered a sharp increase in Q3 and Q4 of 2008-09 (Table 2). It is, however, important to note that unlike many countries the entire fiscal stimulus in India was aimed at addressing the deficiency in aggregate demand rather than extending support to the financial sector. While this meant a deviation from the planned fiscal consolidation path as committed under the Fiscal Responsibility and Budget Management (FRBM) Act, without the stimulus the deceleration in GDP growth during 2008-09 would have been much sharper.

**Table 2**  
**Components of aggregate demand in India**  
(Percent)

Item	2008-09				2009-10
	Q1	Q2	Q3	Q4	Q1
<b>Growth Rates (Year-on-Year)</b>					
Private Final Consumption Expenditure	4.5	2.1	2.3	2.7	1.6
Government Final Consumption Expenditure	-0.2	2.2	56.6	21.5	10.2
Gross Fixed Capital Formation	9.2	12.5	5.1	6.4	4.2
Change in Stocks	6.0	5.6	1.4	-0.9	3.2
Exports	25.6	24.3	7.1	-0.8	-10.9
Less Imports	27.4	35.3	21.7	-5.7	-21.2
<b>Relative shares</b>					
Private Final Consumption Expenditure	58.0	55.5	57.4	51.4	55.6
Government Final Consumption Expenditure	9.6	8.3	12.5	13.4	9.9
Gross Fixed Capital Formation	32.2	34.5	30.9	31.6	31.6
Change in Stocks	3.2	3.2	2.9	2.9	3.1
Net Exports	-1.3	-10.5	-8.5	-2.9	1.6

Source: Central Statistical Organisation.



# Future of Financial Sector Reform

## Why was India impacted by the global financial crisis?

During the initial phases of the global crisis, the Indian financial markets remained unaffected as the direct exposure of banks to global subprime assets was negligible. The growth process, being largely domestic demand driven, remained broadly intact. It was then perceived that India and other EMEs were ‘decoupled’ from the advanced economies. As indicated by Governor Dr. Subbarao “the ‘decoupling theory’ was never totally persuasive”.<sup>1</sup> As the crisis intensified, particularly after the Lehman collapse, the global shocks first impacted the domestic financial markets and then transmitted to the real economy through the trade, finance and confidence channels.

Despite the dominance of domestic demand, the role of trade in conditioning the growth process in India is becoming important over time. A significant boost to global integration came through rapid growth in India’s international trade in services in the 2000s enabled by expansion in information technology which facilitated cross-border delivery of services. Progressive liberalisation of capital account, initiated in the 1990s and continued through the 2000s, gave further fillip to the process of financial integration. Thus, the financial channel emerged as dominant factor with gross capital flows (inflows plus outflows) rising to over 50 percent of GDP in 2008-09 from an average of about 5 percent in the 1980s (Table 3). Given the significant degree of openness achieved since the 1990s, it is natural that the global shocks – real as well as financial –have greater impact.

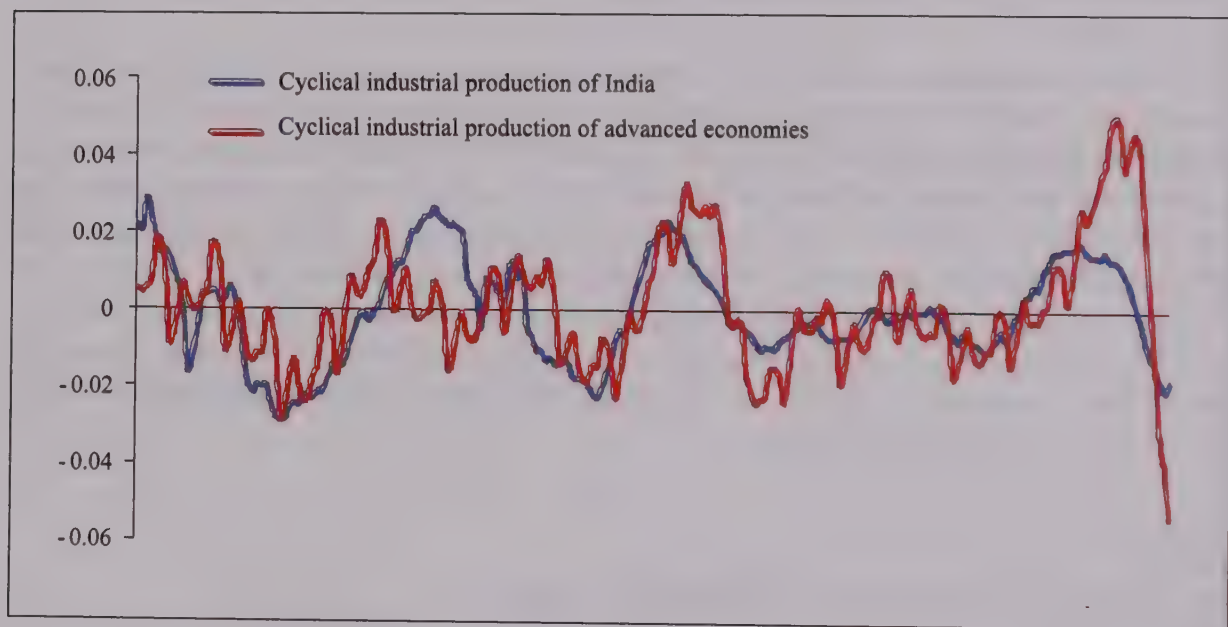
**Table 3**  
**Key indicators of openness of the Indian economy**  
(Percent of GDP)

Year	Goods Trade	Services Trade	Gross Current Account	Gross Capital Account	Gross Current and Capital Account
I	2	3	4	5	6
1970s	10.0	1.3	12.7	4.2	16.9
1980s	12.7	2.5	17.2	5.4	22.6
1990s	18.8	4.1	26.7	15.1	41.8
2000s (2000-09)	29.4	9.8	45.1	32.8	77.9
2008-09	40.6	13.1	61.0	51.5	112.4

<sup>1</sup> Dr. D. Subbarao (2008), “Mitigating Spillovers and Contagion – Lessons from the Global Financial Crisis”, Speech delivered at the RBI-BIS Seminar at Hyderabad on December 4, 2008.

With increased global integration, the Indian economy now is subject to greater influence of global business cycles. The correlation between the cyclical component of the index of industrial production (IIP) of the advanced economies and India has risen to 0.50 during the period 1991-2009 from 0.20 in during the period 1971-1990 (Chart 1).

**Chart 1**  
**Business cycle of advanced economies and India: 1991 to 2009**

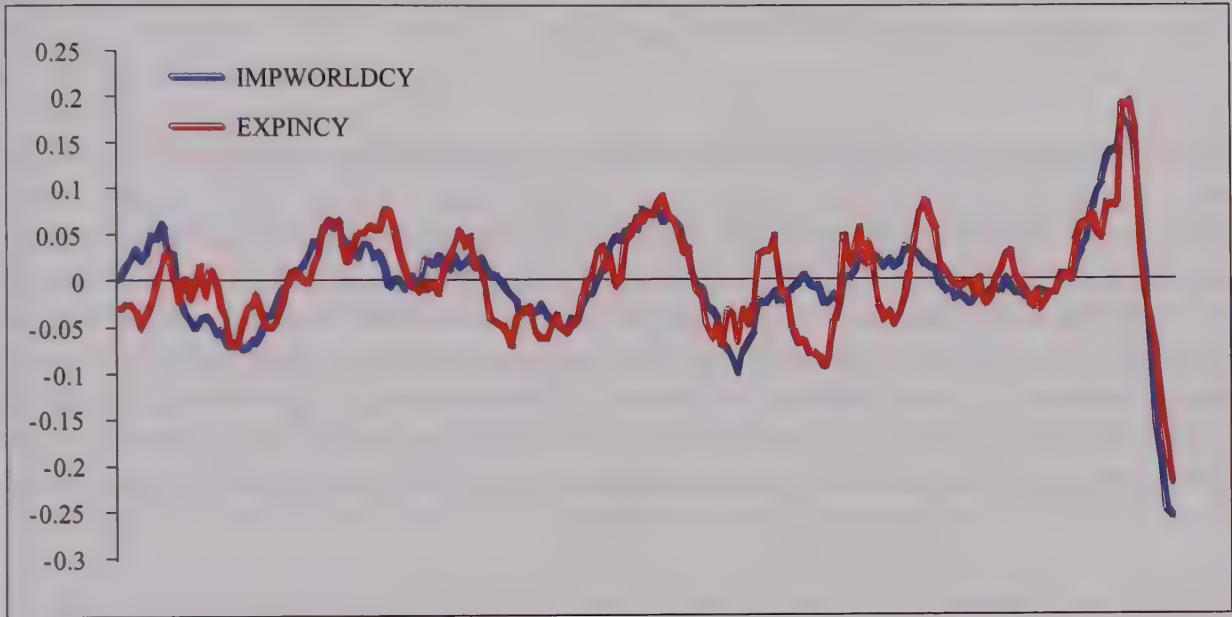


The traditional conduit of transmission of global shocks is through trade cycles. The cyclical movement in India's exports and world imports during the earlier period 1970-91 was not significantly synchronised with a relatively low correlation of 0.38. However, with rising exports alongwith a transition from primary article exports to manufacturing exports, the correlation between India's exports and world imports has increased significantly to 0.80 during the recent period 1992-2009 (Chart 2).



# Future of Financial Sector Reform

Chart 2  
Trade cycle of advanced economies and India: 1992 to 2009



Besides the synchronisation of the trade cycles, the financial channel of integration has also become prominent during the recent period. A causal analysis between the cyclical component of the Indian stock prices (BSE Sensex) and the US stock prices (S&P 500 Index) reveals that during the earlier period (1970-1991), when foreign investors could not participate in the Indian stock market, there was no causal effect of the global stock prices on the Indian markets. However, in the recent period (1992-2009), there has been greater impact from the global stock prices on domestic stock prices with the US stock prices having significant causal impact on the Indian stock prices (Table 4).

Table 4  
Causality between the cyclical components of the Indian and the US stock prices

Null Hypothesis	F-Statistic	Result
Sample: 1970Mo1 1991M12		
BSE Index does not Granger Cause S&P500	1.89	Accept
S&P500 does not Granger Cause BSE Index	0.48	Accept
Sample: 1992Mo1 2009Mo6		
BSE Index does not Granger Cause S&P500	0.36	Accept
S&P500 does not Granger Cause BSE Index	4.80	Reject

These shifts in the degree of synchronisation of the Indian trade and business cycles with the global cycles and increased financial integration in the recent period indicate that India cannot remain immune to global trends. Thus, global economic developments now have a greater influence on the domestic economy.

### How did monetary policy in India respond to the Global Financial Crisis?

— As the crisis intensified, the Reserve Bank of India, like most central banks, took a number of conventional and unconventional measures to augment domestic and foreign exchange liquidity, and sharply reduced the policy rates. In a span of seven months between October 2008 and April 2009, there was unprecedented policy activism. For example: (i) the repo rate was reduced by 425 basis points to 4.75 percent, (ii) the reverse repo rate was reduced by 275 basis points to 3.25 percent, (iii) the cash reserve ratio (CRR) was reduced by a cumulative 400 basis points to 5.0 percent, and (iv) the actual/potential provision of primary liquidity was of the order of Rs. 5.6 trillion (10.5 percent of GDP).

There are, however, some key differences between the actions taken by the Reserve Bank of India and the central banks in many advanced countries:

- First, in the process of liquidity injection the counter-parties involved were banks; even liquidity measures for mutual funds, NBFCs and housing finance companies were largely channeled through the banks.
- Second, there was no dilution of collateral standards which were largely government securities, unlike the mortgage securities and commercial papers in the advanced economies.
- Third, despite large liquidity injection, the Reserve Bank's balance sheet did not show unusual increase, unlike global trend, because of release of earlier sterilised liquidity.
- Fourth, availability and deployment of multiple instruments facilitated better sequencing of monetary and liquidity measures.
- Finally, the experience in the use of procyclical provisioning norms and counter-cyclical regulations ahead of the global crisis helped enhance financial stability.

By synchronising the liquidity management operations with those of exchange rate management and non-disruptive internal debt management operations, the Reserve Bank of India ensured that appropriate liquidity was maintained in the system, consistent with the objective of price and financial stability. The policy stance clearly reflected the forward looking undertone, particularly the expectations of more prolonged adverse external conditions in the face of no visible risks to inflation. While the magnitude of the crisis was global in nature, the policy responses were adapted to domestic growth, inflation and financial sector conditions.

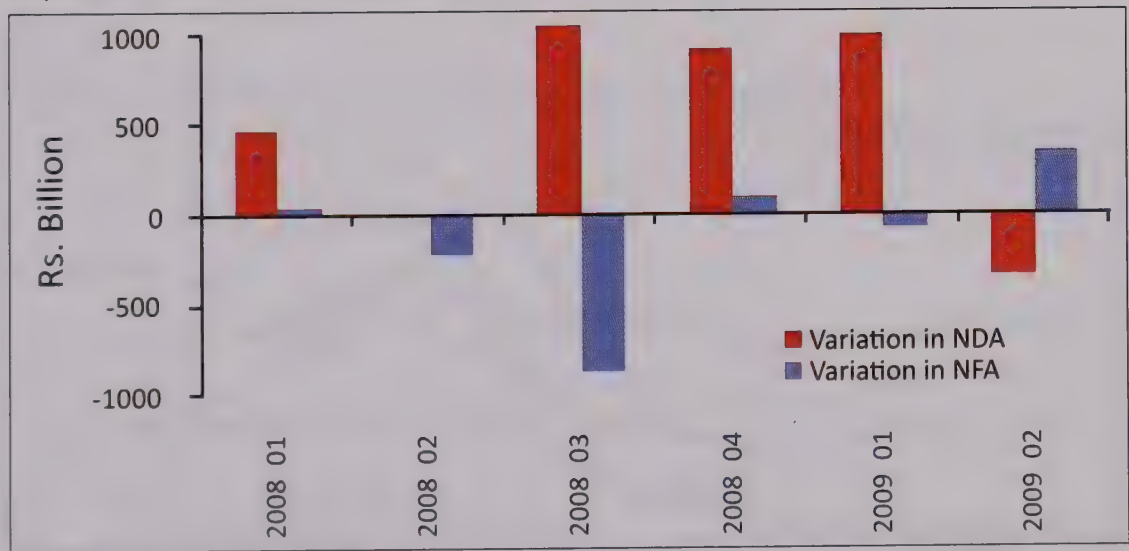


## Future of Financial Sector Reform

### How did crisis management change the Reserve Bank's balance sheet?

■ As the balance of payments came under pressure in Q3 of 2008-09 due to capital outflows, it became necessary to draw down reserves to finance the shortfall and maintain orderly conditions in the foreign exchange market. This led to corresponding contraction in the base (reserve) money. The Reserve Bank, therefore, ensured the necessary expansion in net domestic assets (NDA) through conventional open market operations (OMO) involving outright purchase of government securities in the secondary market as well as provision of liquidity through repos under its daily liquidity adjustment facility (LAF) (Chart 3). Another instrument which allowed the Reserve Bank of India to expand liquidity was the unwinding of the market stabilisation scheme (MSS) securities.<sup>2</sup> The unwinding of MSS balances not only created the scope for adequate liquidity expansion by the Reserve Bank without expanding its balance sheet (Chart 4) in any significant measure, but the timing of the unwinding could also be modulated in such a way that the large borrowing programme of the government was managed smoothly without exerting undue market stress. In addition, the reduction in CRR of banks from 9 percent to 5 percent released Rs.1.6 trillion of primary liquidity to the banking system.

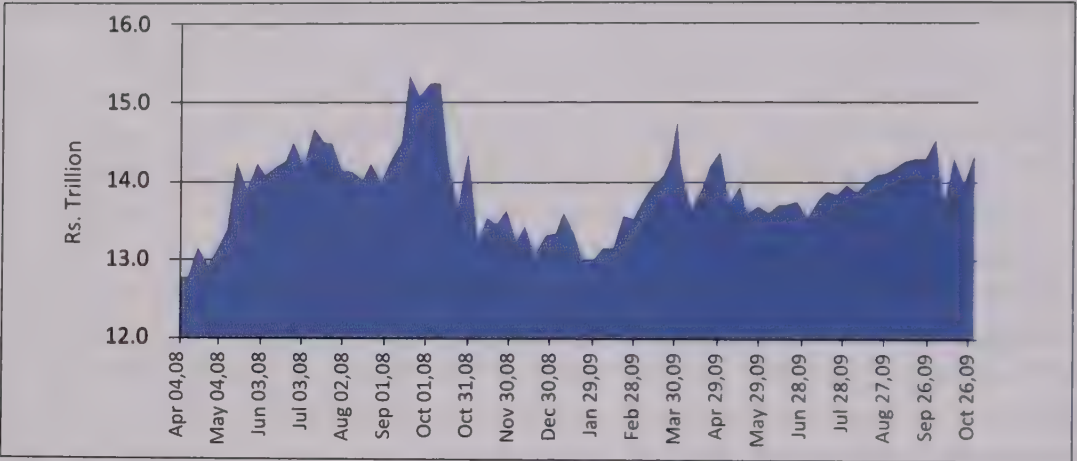
Chart 3  
Impact of liquidity management



Note: Net Domestic Assets (NDA) here excludes non-monetary liabilities and the impact of LAF; Net Foreign Assets (NFA) excludes valuation changes

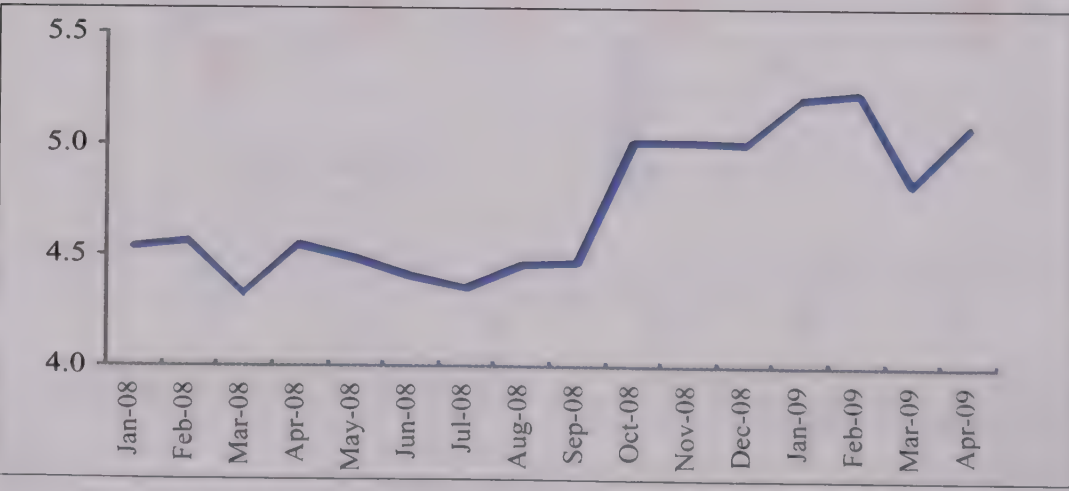
<sup>2</sup> MSS securities are essentially short-term government securities, introduced in April 2004, as an instrument of sterilisation to partly neutralise the expansionary effects of surges in capital inflows. The amount sterilised through MSS remained immobilised in the Central Government's account with the Reserve Bank of India. As at end-September 2008, MSS amount stood over Rs. 1.7 trillion.

**Chart 4**  
**The balance sheet of the Reserve Bank of India**



While the Reserve Bank’s balance sheet did not show unusual expansion, sharp reductions in CRR raised the money multiplier, leading to higher increase in broad money.<sup>3</sup> The average money multiplier rose from 4.3 in March 2008 to 4.8 in March 2009, reflecting lowering of CRR (Chart 5). The increase in money multiplier ensured steady increase in money supply consistent with the liquidity requirements of the economy.

**Chart 5**  
**Changes in money multiplier**



<sup>3</sup> Money Multiplier can be expressed as  $\frac{1+c}{c+r}$ , where,  $c$  is currency-deposit ratio (a behavioural variable) and  $r$  is reserve requirement ratio (a policy variable). A reduction in  $r$  leads to an increase in the money multiplier

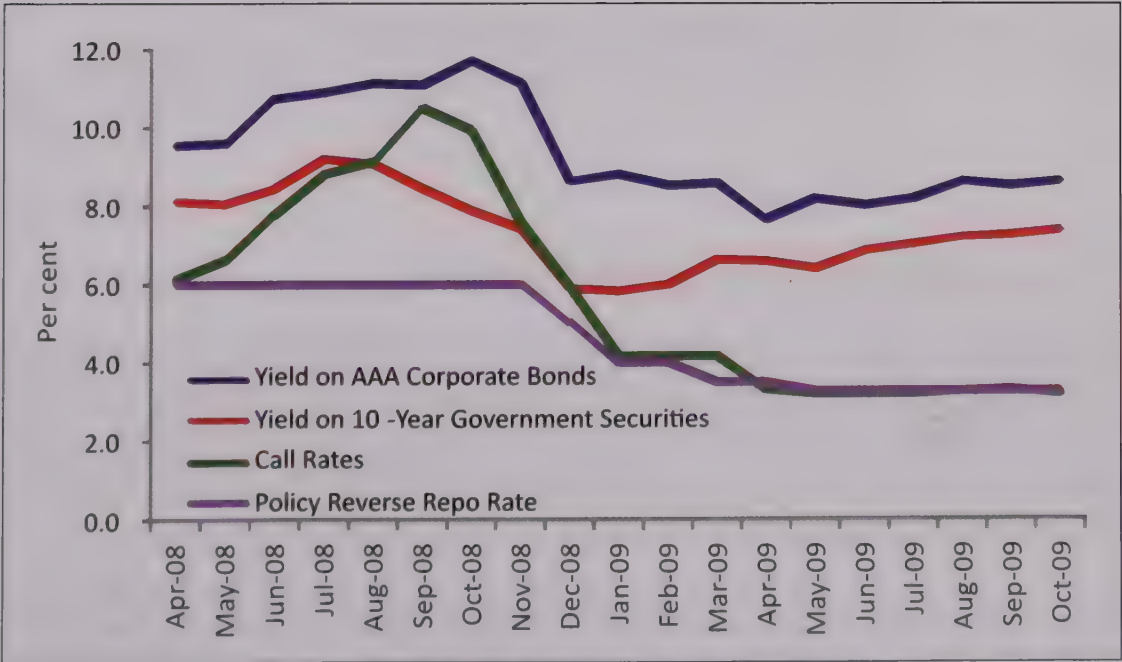
## Future of Financial Sector Reform

The liquidity injection efforts of the Reserve Bank, despite being large, could be achieved without compromising either on the eligible counterparties or on the asset quality in the Reserve Bank's balance sheet. The liquidity requirements of non-bank financial entities were met indirectly by extending liquidity support to the designated counterparties like scheduled commercial banks and primary dealers. Liquidity expansion achieved through unwinding of MSS and reduction in reserve requirement ensured that the Reserve Bank's balance sheet did not expand significantly, unlike in several other central banks.

### How did monetary transmission work?

— In the wake of the crisis, monetary transmission broke down in several countries as risk aversion gave rise to credit crunch. As regards India, the changes in the Reserve Bank's policy rates were quickly transmitted to the money and debt markets (Chart 6). The money market rates moved in tandem with the policy reverse repo rate. However, transmission to the credit market was slow due to several structural rigidities in the system, especially the dominance of fixed term deposit liabilities in banks' balance sheets at fixed interest rates.

**Chart 6**  
Transmission of policy rates to money and bond markets

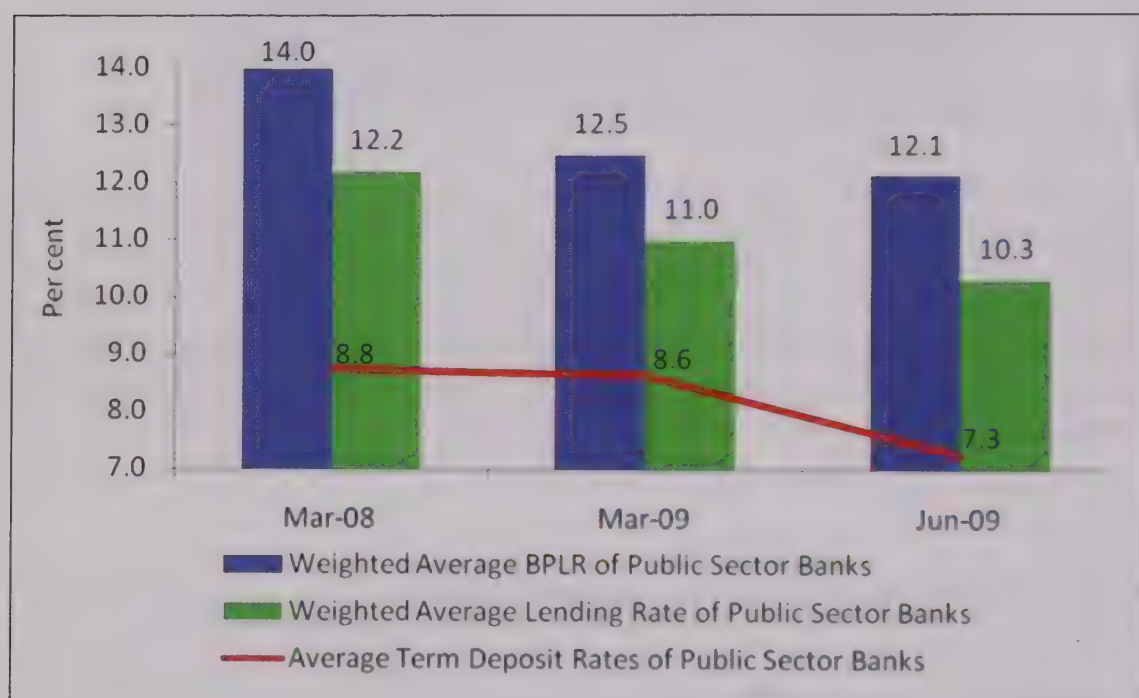


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As bank deposits contracted in the past at high rates have started to mature and banks have significantly reduced their term deposit rates, the transmission of lower policy rates to the credit market has improved with a lag (Chart 7).

**Chart 7**  
**Deposit and lending rates of public sector banks**



## What are the challenges of exit from monetary easing?

— There is an active debate on the timing and sequencing of expansionary monetary stance around the world. In this context, Governor Dr. Subbarao, in his J.R.D. Tata Memorial Lecture<sup>4</sup> had indicated that the current monetary and fiscal stance is not the steady state. The exit from the current monetary policy accommodation could, however, be different across

<sup>4</sup> Dr. D. Subbarao (2009), "Global Financial Crisis Questioning the Questions" Speech delivered at the JRD Tata Memorial Lecture at the meeting of The Associated Chambers of Commerce and Industry of India, New Delhi on July 31, 2009.

## Future of Financial Sector Reform

countries depending on the balance of risk to growth and price stability, types of balance sheet adjustment that have taken place during the crisis and the position of the economy in the business cycle. In the case of advanced countries, where central bank balance sheets have expanded substantially including the portfolio comprising mortgage-backed securities, commercial papers and corporate bonds, the exit policies may be constrained by the speed of revival and developments in the specific market segments. In contrast, the central bank accommodation in India was mainly done through unwinding of MSS and conduct of OMO including LAF and through special refinancing facilities in the banking system. Thus, the withdrawal of monetary accommodation in India should be feasible without adverse impact on specific market segments.

The October 2009 Review of Monetary Policy for the Year 2009-10 brought forward the challenges. To quote:

“The precise challenge for the Reserve Bank is to support the recovery process without compromising on price stability. This calls for a careful management of trade-offs. Growth drivers warrant a delayed exit, while inflation concerns call for an early exit. Premature exit will derail the fragile growth, but a delayed exit can potentially engender inflation expectations.... The balance of judgment at the current juncture is that it may be appropriate to sequence the ‘exit’ in a calibrated way so that while the recovery process is not hampered, inflation expectations remain anchored. The ‘exit’ process can begin with the closure of some special liquidity support measures.”

Accordingly, the Reserve Bank has begun the first phase of ‘exit’, by withdrawal of most of the unconventional measure taken during the crisis.

## Conclusion

— To sum up, despite sound fundamentals and no direct exposure to the sub-prime assets, India was affected by global financial crisis reflecting increasing globalisation of the Indian economy. The policy response has been swift. While fiscal stimulus cushioned the deficiency in demand, monetary policy augmented both domestic and foreign exchange liquidity. The expansionary policy stance of the Reserve Bank was manifested in significant reduction in CRR as well as the policy rates. The contraction of the Reserve Bank’s balance sheet resulting from the decline in its foreign assets necessitated active liquidity management aimed at expanding domestic assets, which was ensured through OMO including regular operations under the LAF, unwinding of MSS securities, introduction of new and scaling up of existing refinance facilities. In addition, sharp reduc-

tions in CRR besides making available primary liquidity raised the money multiplier and ensured steady increase in money supply. The liquidity injection efforts of the Reserve Bank could be achieved without compromising either on the eligible counterparties or on the asset quality in the Reserve Bank's balance sheet. Moreover, the Reserve Bank's balance sheet did not show any unusual increase, unlike that of several other central banks.

At present, the focus around the world and also in India has shifted from managing the crisis to managing the recovery. The key challenge relates to the exit strategy that needs to be designed, considering that the recovery is as yet fragile but there is an uptick in inflation, though largely from the supply side, which could engender inflationary expectations. Thus, the Reserve Bank has initiated the first phase of exit in its October 2009 Review of monetary policy in a calibrated manner mainly by withdrawal of unconventional measures taken during the crisis. This should help anchor inflationary expectations by reducing the overhang of liquidity without jeopardising the growth process as market liquidity remains comfortable.





# Strengthening Regulatory Surveillance



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## Regulatory Structure for Financial Stability and Development

### Abstract

— To understand the appropriate regulatory response to the crisis, we start from the basic market failures that justify regulation in financial markets. Neglecting these first principles contributed to the market and regulatory failures. Regulation that induces better outcomes through creating correct incentives for market participants is the key to reform. A combination of micro and macro prudential regulation can moderate procyclicality, information failure and market power. Better national and global coordination of regulators is also required. Global prudential standards can push financial firms to choose safe over risky strategies, by removing the moral hazard from bailouts, and assuring that a competitor is not adopting risky strategies either. Universal application of basic standards prevents regulatory arbitrage. A pure principles-based regulatory approach maybe too flexible, but principle-based rules retain sufficient operational flexibility and universality. This analysis is applied to regulation in emerging market economies, where development of financial markets is a major regulatory goal along with stability.

### 1. Introduction

— Since self-regulation, expected from ethics or the instinct for self-preservation, and market discipline has not worked, world opinion is veering around to stricter regulation for financial markets. But regulatory discretion also has adverse effects. It can restrain useful activity or support special interests if there is regulatory capture. The important

\* An earlier version of the paper was presented at the 2009 ICRIER–InWent conference on financial systems. I thank participants for useful comments and Reshma Aguiar for assistance.



question is not more, but appropriate, regulation. To understand what this is, we start from four basic market failures that justify regulation in financial markets. We show how neglecting these first principles contributed to market and regulatory failures. Next, we pull together regulatory reform proposals, and regulatory structure, that could best address these failings.

The four categories of failure are excess volatility and procyclicality, information failure, exclusion, market power and size. A combination of micro and macro prudential regulation can usefully moderate the failures. For example, insurance premiums for contributions to systematic risk through size could make large size less profitable. Regulation that induces better outcomes through creating correct incentives for market participants is the key. New technology has the potential to improve disclosure and make innovation safer.

Global coordination of basic prudential standards is also necessary. We demonstrate how such standards can push financial firms to choose safe over risky strategies, by removing the moral hazard from bailouts, and assuring that the competitor is not adopting risky strategies either. Universal application of basic standards prevents regulatory arbitrage. Global regulatory bodies may be more immune from financial lobbying to relax standards. A pure principles-based regulatory approach could be too flexible, but principle-based rules retain sufficient operational flexibility while reducing the delays and capture that come with regulatory discretion. The principles on the basis of which these rules are to be designed are the categories of market failure.

Stricter regulatory surveillance in emerging market economies (EMEs) largely insulated their financial systems from the crisis. Development and convergence of regulatory apparatus has been rapid. In some respects, EMEs may be closer to new global norms. The development of financial markets, however, is a major aim for regulation in EMEs along with financial stability. We examine the success in achieving these objectives in the Indian case. Some problems of regulatory overlap and coordination should be resolved keeping in mind the lessons of the crisis.

The paper is structured as follows: Section two presents the market failures that justify regulation; Section three the market and regulatory failures that led to the crisis; Section four the directions implied for regulatory reform; Section 5 for regulatory structure. Section 6 brings in issues that become relevant in EMEs where stable development of markets is a concern. Section 7 illustrates the analysis with the Indian experience before Section 8 concludes.

## Strengthening Regulatory Surveillance

### 2. Justification for regulation

#### 2.1 General

— The public interest theory of regulation defines it broadly as government intervention in markets to influence those decisions of private agents that would otherwise not fully consider public interest. Intervention is justified by market failure due to monopoly or market power, asymmetric or imperfect information, and the existence of externalities or of public goods<sup>1</sup>. All three categories of market failure occur in financial markets.

#### 2.2 In capital markets

— The basic justification for regulation combined with the special features of capital markets, indicate the major issues for regulation in capital markets. Financial regulation serves the public interest if it ensures the integrity of financial markets and that finance meets the needs of the real economy. Thus it must maintain confidence in the financial system, and protect users. Supervision or enforcement should be distinguished from regulation. It includes operational tasks of financial regulators such as licensing providers of financial services, oversight of compliance, enforcing relevant laws, prosecuting any market misconduct, and investigating client complaints.

But, in addition the four basic market failures require regulatory intervention: failures of information and inclusion, behaviour that creates procyclicality, and the too big to fail (TBTF) syndrome.

Since information is incomplete and asymmetric in financial markets, informational imperfections are inherent. For example, borrowers know more about their own credit risks than lenders do, leading to adverse selection (as borrowers select transaction terms that favour them), and under-provision of credit by lenders. Moral hazard may also occur with borrowers undertaking riskier actions than the lender had agreed to in the loan terms. Issuers of financial instruments know more than institutional investors, each of whom have heterogeneous information sets. Retail investors have the greatest relative information disadvantage. Therefore regulations enforcing transparency, disclosure of price sensitive

<sup>1</sup> The definition follows Lee (2003). This and some subsequent sections draw on and further develop content in Goyal (2009, 2006, 2002).



information<sup>2</sup> and conflicts of interest, and encouraging organisational forms that reduce, or offer protection from, these hazards add value. Better information, including credit histories of borrowers, and one point credible information on investment options, with technology-enabled ease of access is important for financial inclusion.

Information is costly to produce but new technology is making it cheap to reproduce. This creates an externality leading to the underproduction of information. Stock market crashes can also be understood as an externality, since wider participation or high liquidity implies that the costs of price discovery or information production are shared. But during a crisis each participant has an incentive to withdraw and let others bear the burden of price discovery. To reduce such shirking, the regulator should link charges to the liquidity cycle (Wilhelm, 2001).

This points to the basic externality in financial markets. The action of one agent infects others; a failure of financial systems affects the real system, causing cumulative crashes. But decision makers in finance do not internalise these possibilities. Individuals follow each other, rather than fundamentals, creating a tendency towards excess volatility. Wide swings in financial prices result from this herd mentality. Risk is underpriced in a boom, while liquidity dries up in a crash. Inherent network effects, where the value to any one individual rises with the number participating, leading to effects such as a rapid tipping to a particular product or institution, or a lock-in into it, so that it becomes difficult to switch products, enhance such externalities. Therefore ensuring financial stability by reducing volatility, the pro-cyclicality of returns, and mitigating systematic risk, are major tasks for the regulator. The debate is whether this is best done through oversight, or through capital requirements that change incentives.

Monopoly or anti-competitive features arise through the network effects that dominate in the industry, and the formation of various insider groups or financial cartels. There is a tension for the regulator between discouraging size and encouraging the innovation it sometimes makes more feasible. Vertical integration may be necessary to save transaction costs under asset specificity. The Austrian School emphasises that dynamic monopoly profits may be necessary for innovation—waves of creative destruction destroy these in time. But mergers can make financial institutions too large. Systemic effects from their failure force a rescue from the government. So financial regulators must find ways to encourage entry and also innovation.

<sup>2</sup> European jurisdictions mandate disclosure of price sensitive information as a general principle. In the US disclosure was required in response to specific events. A wave of corporate and securities scandals revealed gaps such as insufficient enforcement of disclosure requirements, excessive reliance on peer review for auditors, and inability to keep brokerage and investment banking activities separate. The Sarbanes-Oxley Act passed as a consequence mandated more disclosure.



## Strengthening Regulatory Surveillance

Being too big to fail (TBTF) encourages risk-taking. Home country taxpayers are lumped with the rescue and foreign countries with adverse spillovers. Oversight and insurance premiums linked to potential systemic spillovers can lower moral hazard. Large institutions also escape regulation since they operate across nations. International regulatory coordination and harmonisation are required to prevent regulatory arbitrage.

### 3. Post crisis: Market and Regulatory Failure

— But both regulators and markets forgot these failures as they bought into the dominant paradigm of efficient and rational markets where failures do not occur. Turner (2009) lists the implications of this paradigm for the regulatory approach followed. First, market prices give economic value. Second, market discipline constrains harmful risk taking. Third, market competition weeds out unproductive innovations. Therefore it was thought securitised credit would create more liquid, diversified and stable markets. Mathematical models were presumed to provide robust measures of trading risk.

But market discipline did not work. Although the securitized OTC markets were opaque there was considerable information available in the US public domain on subprime exposure. By late 2007 it was clear that a number of banks were poorly capitalised. Yet investors did not use this information to value and discipline banks (Pomerleano 2009). The paradigm and its implications did not hold. But there was regulatory failure also.

The performance of regulators with respect to the basic market failures identified was inadequate. First, disclosure on complex derivatives and risk taken was poor. Better disclosure was not enforced. Even so, ample warnings were available but were not used to design an effective response. On-site examinations were not conducted.

Second, the regulatory regimes enhanced the procyclicality of financial systems. Basel I encouraged off-balance sheet instruments. The post Enron 2002 Sarbanes Oxley Act allowed off balance sheet activities so long as other entities held the risks and rewards, thus also encouraging the “originate and distribute” model. US politicians wanted to expand home ownership so the Community Reinvestment Act was amended in the mid-nineties to allow securitisation of sub-prime mortgages, making home loans possible for low-income categories. Inclusion is important, but this was a flawed design, based on a naive assessment of ever-rising home values.

The Commodity Futures Modernisation Act of 2000 exempted credit default insurance from regulation by calling them swaps. Basel II allows capital adequacy below 8 percent through the use of internal risk models, based on market prices. Self-regula-

tion based on such an internal price of risk, enhances pro-cyclicality. These models guide movement into sectors offering better risk-return trade-offs. But players have similar aims and information. Volatility and correlation increases and prompts concerted model-driven selling. The basic assumption of statistical independence underlying risk-sensitive models does not hold if everyone uses them in markets prone to fail. Modern mark-to-market accounting rules and dynamic hedging deepen these cycles (Goyal, 2009). The Basel Committee spent 15 years to produce a form of regulatory forbearance where firms make the above type of obscure and complicated capital calculations yet do not reduce risk adequately. The failed institutions were Basel II compliant. Both capital and supervision were inadequate.

What were the reasons for this regulatory failure? It was partly ideology – the belief in market efficiency and self-regulation. Influential regulators such as Greenspan believed stronger regulatory oversight would damage innovation since the lawyer is biased towards preventing activity. The pervasiveness of ideology illustrates Keynes' view that behaviour is based on the dominant opinion even if it is wrong. It is safer to think the same (Pomerleano, 2009). But also the share of the financial sector in US business profits has crossed 40 percent. US comparative advantage was largely in finance, generating political support for finance driven growth. Tighter regulation has a cost in terms of compliance and innovation foregone. Although the US system is rule-based, lawmakers relaxed the rules, and regulators relaxed oversight to encourage competitive innovation.

The TBTF size of financial institutions allows them to pass on the risks they take to the taxpayer. Regulatory capture comes not only from ideas, but also from the wallet. Financial corporations spend huge amounts in lobbying regulators and politicians<sup>3</sup>. Regulatory agencies come to represent special interests. Public interest functions as a fig leaf hiding group interests.

#### **4. Directions for regulatory reform**

— What are the implications for reform? The energies and freedoms of markets must not be choked but ground rules must turn the energies in safer directions. Pendulums tend to swing from one extreme to the other, but they do modulate over time. The pro-market swing was a reaction from the extreme swing towards government control of markets. The crisis may help discover the right combination of regulation and markets. Regulatory dis-

<sup>3</sup> US financial, insurance and real estate industries spent a record amount of nearly \$460 million in lobbying activities in 2008, according to the political watchdog group. Center for Responsive Politics.



## Strengthening Regulatory Surveillance

cretion invites excessive restraints, corruption and regulatory capture. But rules need to incentivise better behaviour, moderating the basic market failures identified. A complex enough rule can be closer to a principle-based approach, yet reduce delays and regulatory forbearance. If a regulator is first expected to prove a market failure before intervening, as in American competition policy, it can take too long.

There are many good reform suggestions that can be classified as principle-based rules. Prudential regulations all have this character. The principles causing market failure motivate their design; they work by aligning the incentives of agents with those of regulators, and give some flexibility in adapting to context. But they are rule like in being triggered by objective criteria (for example, prompt corrective action clauses), reducing regulatory discretion and delay. Consider reform proposals for non-transparent and risky securitized products, which played a large part in the crisis. If loan originators retain a small percentage of a securitised loan on its own books, they have incentives to create safer loans. Tailoring retention percentage to the type of product could reduce costs. Relating securitiser compensation to the long-term performance of the loan would also reduce incentives to give risky loans. If securitised products are simplified and standardised and traded or at least recorded in exchanges, liquidity and price discovery improves. There is a better idea of outstanding risks. This, together with disclosures of materially relevant information improves transparency (IMF 2009). These are all examples of micro-prudential regulation creating better incentives.

But such micro-prudential regulation cannot alone deal with the systemic risks created through individual behaviour. Macro-prudential regulation through counter-cyclical capital charges would reduce the decline in measured risk during booms and its rise in crashes. Brunnermeier et. al. (2009) suggest capital adequacy requirements should be raised over a cycle when there is above-average growth of credit expansion and leverage, and wherever there is mismatch in the maturity of assets and liabilities. Thus institutions borrowing short and lending long would need higher capital reserves. Mark-to-market procedures that enhance procyclicality also need to be changed. Moderating market cycles of greed and fear can reduce externalities. Special capital penalties, oversight, and insurance premiums, on TBTF institutions will create disincentives for marginal contributions to systemic risk. Competition policies may aim to prevent firms from getting too big. Concentration margins could be charged for banks that lend predominantly to a closed circle of big finance.

There are strong cross-border relationships between institutions and markets. Improved international coordination is important since finance flows across borders and can arbitrage weak spots or differences in regulation. Also unilateral actions of regulators have consequences for others. The roles of home and host authorities have to be clarified. Counter-cyclical regulatory policy needs to be implemented mainly by the "host" rather than the



"home" country, since cycles differ across countries. But general standards need to be harmonised, while retaining operational flexibility. Such harmonisation prevents regulatory arbitrage and competitive risk taking.

A simple game model<sup>4</sup> below shows why regulatory rules and standardisation would help reduce procyclicality and increase the stability of the financial system. Table 1 depicts the actions, equilibria, and payoffs. The first number is the payoff to a bank from its operations in a country, the second to the country. Note that the payoffs are to the country, but a regulator takes the action. Consider the first two columns of payoffs. In a situation where a country is overheating the bank can make *risky* or *safe* loans; the regulator can either *do nothing* or make emergency funds available under a *bail out* in case of a crisis. As the arrows show there are two *Nash equilibria*, the first where the bank selects to make *safe* loans and the regulator does not have to take any action, and the second if loans are *risky* and there is a *bailout*. But if the bank moves first to choose the type of loan, it will make risky loans because of the moral hazard created by a bailout, and the higher returns it may earn. The unique *Subgame Perfect Nash Equilibrium* then is (8,3).

Table 1  
The effect of regulation on risk

		Regulator/Country			
		No action	↔	Bailout	Capital Charge
Bank	Safe	(7,4)	→	(7,4)	(5,2)
	Risky	(9,0)		(8,3)	
→					

If the bank moves first, the regulator is forced to *bailout*, because the outcome with no action (9,0) is so bad for the country. The same outcome, a crisis and a *bailout*, can be expected in future. But if the rules of the game are changed to introduce countercyclical capital charges, column three of payoffs replaces column two. In this game the bank will prefer to make *safe* loans. The capital charges make the bank's payoff relatively higher

<sup>4</sup> The game is adapted from one used in Goyal (2002).

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under safe loans. Now the unique Nash equilibrium is (7,4), with the creditor making *safe* loans and the regulator *doing nothing*. Both country and creditor are better off. Therefore, if such regulatory rules are adopted, the probability of a crisis falls. Now consider a number of banks choosing between the strategies. Competition among banks forces the choice of risky strategies. That is why external regulatory standards are so powerful. If a bank is assured its competitor will not choose risky strategies that may allow it to make more money, it will not choose those strategies either.

## 5. Regulatory structure

— The above section points to the requirement to harmonise regulations across countries. But coordinating regulation of financial activities is a problem even within a country. A few countries have a single umbrella financial regulator. Others have sector specific regulators for banking, securities, derivatives, commodities, insurance and pensions markets. There can be overlap<sup>5</sup>, with an industry reporting to more than one regulator. For example, in the US, banks report to multiple regulators. Post crisis, functional twin peaks regulation with a separate prudential or macro risk regulator is becoming popular.

Although information is split with multiple sectoral regulators, specific information and responsibility is better. Creating an apex regulator, such as the FSA<sup>6</sup> in the UK, carried out in 2000 before the crisis, was implicated in the failure of Northern Rock in the UK. Since the Bank of England was no longer responsible for banks and information available with it was reduced, it was late in providing lender of last resort (LOLR) facilities. But Bear Sterns failed in the US where there are multiple bank regulators including the Fed. Thus problems have occurred under every type of regulatory structure.

Macro- and micro-prudential regulation each requires different skills and information. The best alignment of information and incentives occurs if Central Banks (CBs) are responsible for macro-prudential regulation, sectoral regulators for micro-prudential regulation, and there is good coordination between the two.

<sup>5</sup> US financial reform would split responsibility for derivatives between the SEC and the Commodity Futures Trading Commission. The SEC would oversee derivatives based on individual securities and the CFTC would regulate derivatives that draw their value from a broader index of securities. There are fears that this could vitiate regulation of the \$450 trillion private swaps market.

<sup>6</sup> The FSA is incorporated as a company, funded by fees from those it regulates. So the principles of good regulation for it include reducing regulatory costs, increasing innovation and competitiveness of the UK industry. Its principle-based approach includes general ethics, but there is nothing about market failure.

Maintaining monetary stability also requires financial stability. Formal oversight authority over banks and markets generates information for CBs useful in the conduct of monetary policy. FX and interest rate derivative markets affect variables important for the conduct of monetary policy. Analysis undertaken for monetary policy is useful for macro-prudential tasks. CBs have become crucial for the financial sector in their role as lenders of the last resort. The crisis has forced them to expand this function beyond banks, as the financial sector has diversified, its interlinkages thickened, and ability to expand balance sheets procyclically and create risk expanded. More power for the systemic risk regulator must come with more responsibility.

Micro-prudential supervisors also have an essential role since they have detailed knowledge of financial markets and institutions and will have critical information to assess stability risks. The macro-micro regulatory split has a functional basis. An apex body must not be a financial market regulator like the FSA, which would tend to support financial sector competitiveness and profitability, but a body for coordinating and sharing information led by the systemic risk regulator.

The European Union (2009) has come up with just such a proposed structure for Europe. A macro-prudential regulator, the European Systemic Risk Council (ESRC), will assess threats to financial stability and reduce vulnerability to interconnected, cross-sectoral systemic risks. It will be made up of governors of national central banks and representatives of financial market supervisors, with the president of the ECB as chair. A similar systemic risk body is possible at the national level.

Micro-prudential supervision will be provided through a network of national financial supervisors working with a European System of Financial Supervisors (ESFS) to safeguard individual financial firms and protect consumers of financial services. Since the pressure from cross border flows is higher in Europe, this bipolar system had been put on the fast track with draft regulation already prepared in 2009.

The nationally based supervision of firms, with centralization of specific tasks at the European Union, is expected to foster harmonised rules. While there are obvious advantages to standardisation there are fears over giving too much power to the ECB over national supervisors, possible prescription of detailed supervisory practices, and loss of national priorities in financial services and banking arrangements. But principle-based rules retain operational flexibility. For example, a rise in capital adequacy, linked to the stage of the cycle (a sharp rise in credit is normally a good indicator) would have to be implemented by the domestic systemic regulator. Implementing micro-prudential standards in financial markets such as prompt corrective action linked to banking parameters is a task for a local sectoral regulator. Principle-based rules avoid regulatory intervention in operational decisions of firms



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Financial conglomerates prefer a single regulator, which offers reduced compliance costs and an easier target for lobbying. They also prefer the apex regulator to be an FSA rather than a Central Bank, since the former would tend to have more of a market rather than an overall view. Prabhakar (2009) writes politicians are motivated to prevent systemic instability and attract foreign firms to their country's financial sector. They also seek to avoid blame. Therefore financial scandals and crises may lead to assigning blame to the CB and removal of supervisory authority from it.

But CEOs, for example John Mack of Morgan Stanley, prefer a global regulator to oversee financial institutions worldwide, since a standardized systemic-risk management would ensure that US banks aren't subject to tighter regulations than the rest of the world. Credible uniform standards are very useful to prevent a competitive race to take more risk, as we saw in the game theoretic example. But given the vast lobbying power and resources of the financial industry the fear is rather that US banks will continue to be lightly regulated. The administration's 2009-reform plan was inadequate since it did not build in countercyclical macro prudential rules, or resolve problems of regulatory overlap. And, under lobbying pressure, it was further diluted<sup>7</sup>. Electoral losses forced the President to propose caps on pay and restrictions on trading for deposit taking banks.

Global enforcement of some minimal standards together with local operational flexibility is desirable. Global bodies, with a diverse and representative governance structure, could be more immune from financial lobbying and domestic political compulsions, and as we argue below, and their involvement is a natural evolution of regulation. If officials have to follow a rulebook, then interest groups have less of a stake in the decision and therefore less incentive for regulatory capture. This is one reason transparent rules that minimise discretion are used even though some flexibility is lost. The alternative is to raise the cost of subversion.

## 6. Regulation and development

— Although financial stability is very important to them, EMEs also have to develop their financial systems. What type of intervention is best may depend on the level of development. In mature economies regulation replaced early reliance on private litigation in cases of failure of public interest, although judicial intervention could still be called in to resolve disputes.

<sup>7</sup> For example, a requirement offering customers alternatives to complex financial products was dropped. It would have forced banks to make standardised mortgages with 30-year fixed rates available along with other products such as adjustable-rate or interest-only loans.

Glaeser and Shleifer (2003) in considering the choice between private litigation or regulation or a combination of the two as a law enforcement strategy, argue the vulnerability of each of these categories to subversion for private gain varies with the level of development and inequality in a society. At low levels of development the system of justice is extremely vulnerable to influence, but at high levels it becomes robust. Therefore, rather than have the heaviest government intervention when market failures are relatively more, as is commonly argued, both legal and regulatory systems should be minimal at this stage. The costs of regulation may be high, or regulatory agencies may be mismanaged. Human capital or information on the public's requirements may be poor. A combination of regulation and of litigation may be efficient in intermediate regimes, since regulation may now be less vulnerable to subversion than is litigation. High costs of damage overwhelm those of regulation at this stage. When law and order is weak, and inequality is high, private litigation based pure liability regimes, which entail large payments with small probability, are more vulnerable to ex-post subversion<sup>8</sup>. At high levels of development, a litigation regime would outperform regulation. The cost of corruption is highest for International litigation – so international judicial oversight would be the most immune to lobbying. The WTO has a credible and effective enforcement mechanism. An agreement signed against more regulation of financial services is a block now that the requirement for regulatory overhaul of the financial sector has become obvious, and WTO could be useful to enforce standards.

Many EMEs are in the above intermediate range where regulation is more effective compared to law, and are actively setting up new regulatory structures. La Porta et. al. (1998) argue that a common law tradition is necessary for healthy equity markets. But China can set up a good regulatory institution faster than it can acquire common law – thus regulation can compensate for other weaknesses.

The issue for EMEs is more of converging to best practices. Standard-setting organisations such as IOSCO (International Organisation of Securities Commissions), and international bodies of regulators, such as the Financial Stability Board, can help. But since many EMEs are coming from a regime of stronger controls they have more oversight and surveillance of the financial sector. Post crisis, some of the international standards may be adjusting more towards EME's practice. Convergence can be faster if principle-based international standards are adopted.

<sup>8</sup> In the US progressive era (between 1887 and 1917) the large corporations or "robber barons" had judges in their pockets. Therefore reformers established the state regulatory agencies.



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Moreover, contextual features require attention. EME concerns such as excessive leverage and volatile capital flows need to be addressed. IOSCO's stance is that adoption of international standards and accounting systems will help to deepen shallow debt and equity markets, changing the historical reliance on banks. But in Asia only a small percentage of large household savings are held in stocks. The history of bank led relationship-lending leads to the dominance of insiders; there is a tendency to accommodate and adjust rather than punish behaviour on the margin of illegality. In the Chinese stock exchange there are a large number of non-traded shares mostly owned by the State, with insider trading dominating in the thin set of shares actively traded. These features limit protection for investors. Better investor protection can reassure households, but other positive measures are also required.

Laffont (2005) argues that poor monitoring in developing countries limits the power of incentives that regulators of public services can give service providers. But technology is changing this quickly, especially in financial markets, making it possible to give market participants more economic incentives with improved real time but non-invasive monitoring.

Changes in technology have had fundamental effects on the possibility of regulation, and on safe innovation. India used new technology effectively to create electronic markets reaching and sometimes exceeding international benchmarks in disclosure norms, trading volume, settlement cycle, and low transaction costs. In the order driven system, each investor can access the same market and order book, at the same price and cost, irrespective of location. Dematerialisation of securities reduced bad paper risk. There were rapid developments also in FX and money markets. A central counterparty, CCIL (Clearing Corporation of India) undertakes guaranteed settlement for government securities (G Secs), repos in G Secs and FX market trades, following IOSCO/CPSS best practices. Infrastructure has been created for electronic payments and real time gross settlement (RTGS). Technology has been underutilised for financial inclusion, however, although it has great potential for reducing costs, easing entry and exit, and providing better information on fundamentals. Mobile banking may make it possible for more than the current 40 percent of households to have bank accounts.

Principle-based rules addressed each of our four market failures, with some success, although further improvements are required.

**Disclosure:** Strict norms regarding disclosure of price sensitive information, and conflicts of interest, contribute to reducing asymmetries of information and aid the markets in price discovery. Technology allows instant registration of price sensitive information and of financial results. Better corporate governance reduces asymmetries of information



between management and shareholders, improves incentives for complying with rules and reporting requirements, and reduces conflicts of interest. Statutory requirements call for one-third of directors to be independent. They have to periodically review legal compliance reports and steps taken for any correction, and to reveal any non fee-based pecuniary connection with the company.

**Volatility:** Price bands, value at risk (VaR) margining systems, SPAN, circuit filters, exposure limits and suspension are all used to curb volatility. These allow adjustment for risk to be individually specific and therefore less inefficient than a common margin, while achieving the desired result of putting concave boundaries on convex returns, thus reducing one-way price movements. Margins that vary with liquidity are required in response to the externalities that follow from herd behaviour in capital markets. Moreover, such margins reduce deposit requirements and therefore lower costs of trade. A daily mark-to-market margin system prevents large risks from building up, and lowers the possibility of a payments crisis.

Margin requirements are adjusted in response to episodes of volatility, or changing market systems. A market wide circuit breaker can be applied at 3 stages of index movement either way at 10 percent, 15 percent, 20 percent, to bring about a coordinated halt to trading. In times of excess volatility, surveillance systems are put on high alert. Other measures are possible like shifting stocks to trade-for-trade category. VaR alone cannot cover systemic shocks, which can force margin sales that intensify index movements. But the other supporting systems proved sufficient to handle even shocks associated with the global crisis. Although many banks failed no stock exchange had to be closed. SPAN covers fat tailed risks, and worst-case scenarios, unlike the VaR.

**Inclusion:** Although financial inclusion is a major aim, the reforms have not been so successful in this. Household financial savings in shares and debentures prior to reforms was above 20 percent, but post-reform reached a low of below 5 percent. Technology actually raised entry costs, for example depository charges. Mutual funds through which retail investors were supposed to enter are more interested in servicing corporates and few high net worth individuals through high cost structured products. The sub-brokers that households trusted disappeared from the markets. Only about a hundred large cap stocks have reliable liquidity, and small enterprises are excluded from the markets and the credit system. A broader base with trade at different horizons will make markets more stable, but the issues of entry, exit costs, and different types of risk, have to be addressed. Given the potential size of retail participation a low margin, high volume strategy has great potential.<sup>9</sup>

<sup>9</sup> A major marketing success in consumer goods was the low denomination shampoo sachet. A similar innovation is required in financial products.

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Means to achieve this include: improving financial literacy of investors through education; providing them one point disinterested information; credit histories for lenders; registration and rating for agents; reestablishing trusted technology enabled sub brokers with local knowledge; promoting simple transparent low cost instruments such as index funds.

**Competition:** Cautious entry provided competition, reduced market shares and improved services. The entry of private banks helped force public sector banks to improve profitability and customer services but limitations on entry maintained a robust diversity of systems. Indian stock exchanges multiplied from one to three. The rapid dominance of the Indian for-profit, fully automated NSE promoted by leading banks and financial institutions (mainly public sector), over the powerful traditional Bombay Stock Exchange (BSE), which was also forced to automate, and the collapse of all other small stock exchanges through the country, demonstrates tipping equilibria. Stock exchanges were always subject to network effects because of liquidity—the exchange with more liquidity could tip in customers and lock them in because of lower transaction costs. In the days of floor trading the advantage went to the greatest geographical clustering of financial intermediaries. But with ICT geographically dispersed intermediaries can provide liquidity. The exchange with the best technology is able to attract the most customers. The government ability to sponsor a new technology had a powerful effect in an industry with network effects. Moreover, technology affects the governance structure of exchanges. NSE is a company incorporated under the Companies Act (1956), and makes a profit. The management is independent of the broker members. The official view is that this allows a fair, equitable and efficient market to develop, free of the conflict of interest experienced in broker run exchanges, but our analysis suggests that governance structure follows from technology. With distant participation, an exchange cannot be run like a club. The tipping was so successful that NSE became too dominant and began making large profits. More competition through easier entry of other exchanges and central counter party services with newer technologies and better systems is required to bring down transaction fees.

**Governance:** The earlier no-profit club of intermediaries that through a self-regulating system of committees, rule-making processes and voting mechanisms, distributed the rent among heterogeneous members did not work with dispersed membership. Internationalisation intensifies the latter. Since with new technology liquidity comes through numbers, there is no need for the earlier exclusivity. Since profits help in improving technology, which is now the main avenue of competition, modern exchanges are organised as for profit corporations. (Pirrong, 2003). Insider groups generate rents as well an incentive to trade. So there were initial arguments against anonymous electronic trading—knowing the counterparty is important if participants are heterogeneous. But they lost out as clearing corporations were created to absorb counterparty risk and guarantee trades. Replacing Badla, the old system of carry forward trade without delivery, by modern forward and future deriva-



tives was quite smooth. Experience with Badla may explain why India now has the highest volume in single stock futures.

**Flexibility:** Principle-based rules give enough flexibility to adjust to emerging trends and local requirements. There were many instances of flexibility and learning in regulatory action. For example, norms for private placement and participatory notes were changed in response to arbitrage. In 2009 trading hours were extended for exchanges in response to market demand.

**Innovation:** There is ceaseless innovation in the financial sector. But principle-based rules that reduce procyclicality would encourage safe innovations that increase transparency and stability. Technology can also contribute in this. Post crises there is a move to encourage standardised contracts that would be cleared and traded on exchanges or via a swap execution facility. Even OTC derivatives trading should be through central counterparties. Reporting and netting reduce risks. Customised OTC contracts would face higher margin and capital requirements. Clearinghouses require cash reserve. Users of OTC normally pledge assets, but not cash in swaps deals, and are resisting the additional costs. But alternative credit arrangements could be developed with members of clearinghouses.

In financial services, technology allows the diffusion of information to be increasingly mechanised and taken over by large firms, while human capital is released for innovation. But although the ease of flow of information has increased, the governance structures that maintained an incentive for its flow have yet to change. Earlier exclusive yet transient groups such as investment bankers managing an issue served to reduce free riding, make reputations, and create and share rents. Differential information is also a source of trade in markets. But the areas in which such groups survive are shrinking, as technology takes over mechanised functions. Book building for a new issue continues to be one such area. Since the speed of diffusion of new ideas is much faster, new ways of profiting from them have to be discovered. Among these are financial patents and buying equity into implementations of new ideas (Wilhelm, 2001). Since patents can be used for unproductive blocking and defensive purposes, superior sales and service, lead-time and secrecy work better than patents to appropriate returns from innovation.

Moreover, for a rise in competitive pressure to increase the speed of technological progress high knowledge-diffusion is required, because the follower has a higher incentive to innovate. With low diffusion, competition may even decrease innovation and growth. Therefore patents should be granted only when costs of development are very high compared with the cost of adoption; they then spur creativity. But patents should be avoided when many small sequential innovations lead to an invention; they would then raise legal



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and licensing fees too high and discourage creativity (Goyal, 2006). And the regulator should encourage competition, diffusion, and inclusion more than complex and risky products.

Regulatory arbitrage and financial innovations occur and are copied with such speed that the regulator often does not have enough information to act. Under both discretion and pure principle-based regulation response time is slow. The regulator should therefore set and implement rules of the game that improve incentives, yet reduce decision time.

### 7. Indian regulatory structure

— The Indian financial sector was healthy through the global financial crisis. Even secondary effects through a real sector affected by outflows and a fall in trade were minimal. But there is a debate whether a crash was avoided because a road had not been built or because traffic policing was good. Regulators used a combination of restrictions, supervision, and incentives with a wary eye on market failure. Controls had been reduced with steady market development. For example, in the regulation of the capital account replacing “old and cumbersome administrative procedures” based on multiple discretionary approvals “by a rule-based system largely based on self-certification” was very successful (Jalan 2005, pp. 197). But restrictions continued for complex financial products, reflecting regulatory concerns to increase the hedging percentage of market activities. One of the parties entering into an OTC contract had to be regulated by the RBI. Guidelines on securitisation imposed conservative capital adequacy requirements on exposures. Transactions in credit default swaps were restricted to entities hedging credit exposures. Innovation in products and markets was slow. The road had been built, but with speed bumps.

The experience of scams in the securities market, and involving a non-bank financial company (NBFC), a cooperative bank, and a commercial bank, after the nineties reform, led to a strengthening and extension of supervision and prudential norms to cover NBFCs. Given large capital flows there was a regulatory focus on systematically important non-deposit taking NBFCs and financial conglomerates. Thus the scams pushed the regulators towards universal regulation, and towards closing the regulatory loopholes that plagued mature financial markets. Cross border flows across several regulatory jurisdictions led to initiatives for regulatory coordination across borders.

But most prescient were the macro-prudential regulations implemented much before their worldwide recommendation today. Countercyclical provisioning and differentiated risk weights for bank lending to bubble-prone sectors, such as real estate and equity markets, created incentives to moderate risky behaviour. Conservative accounting standards,

without full mark-to-market requirements, did not permit recognition of unrealised gains in equity or the profit and loss account, but unrealised losses had to be accounted. Banks were required to mark-to-market their investments, but only those held in trading categories. They had to provide for the net losses while ignoring net gains. Any profits on sale of assets to a special purpose vehicle, were to be recognised only over the life of the pass through certificates issued, not immediately on sale (Reddy 2008). A system of Prompt Corrective Action for banks based on capital adequacy, non-performing assets, and return on assets parameters gives an example of principle-based rules. All these reduced pro-cyclical incentives. As banks get ready for Basel II there is an emphasis on stress tests to compensate for weakness in risk models.

India has a number of financial sector regulators: the Reserve Bank of India (RBI) who is also the regulator of banks, the Securities and Exchange Board of India (SEBI), insurance regulator IRDA, the commodity futures trading regulator, and the interim pension regulator PFRDA.

Financial stability became an explicit objective of monetary policy after the Asian crisis. Stability is especially important in a country with a large no of poor without the diversification to withstand risk. A 2006 amendment to the RBI Act expanded its regulatory powers beyond banks to cover the financial system as a whole and to give directions to all agencies active in markets. The Rajan (2009) committee wanted functional restructuring of regulation, based on activities rather than agents. It recommended all regulation of trading to come under SEBI, the capital market regulator, with jurisdiction for the RBI over all deposit taking institutions. But the RBI's broader regulatory responsibilities contributed to protecting the financial sector during the crisis; they provided information and created a sense of ownership that encouraged preventive measures. A narrow regulatory jurisdiction can lead to neglect of the big picture and of other financial sector components. There was synergy between monetary policy and regulatory responsibilities over many market instruments. OTC derivatives, traditionally regulated by the RBI, impact the financial health of banks; money and G Secs markets, FX and interest rate futures are important for monetary policy. Post crisis the functional criteria that should dominate the division of regulatory responsibility are financial stability and systemic risk – with the CB coordinating sectoral regulators. The CB as the LOLR has to have the largest role in monitoring sources of liquidity risk. In a market based system this can arise from many entities apart from banks. Ultimately it is the government's tax base that supports the LOLR function, and regulators have to minimise the burden on the taxpayer.

Overlap may create more regulatory ownership, but unclear demarcation of responsibility between regulators can lead to either over or under regulation. Each may pass responsi-



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bility to the other, or delays may raise costs<sup>10</sup>. There may be gaps in the covering of all systemic risks. Industry has to deal with many regulators. The answer is better co-ordination among regulators.

A High Level Coordination Committee for Financial Markets (HLCCFM) was formed in 1992 in response to regulatory arbitrage to monitor systematically important institutions. It is an informal panel, with no statutory cover, of independent sectoral regulators (RBI, SEBI, IRDA, PFRDA) and the finance secretary. As in the proposed EU system, the CB governor, the systemic regulator responsible for overall financial stability, chairs it. Meetings are regular but without any fixed schedule. There are technical sub-committees for operational issues. So far it has coordinated well only during crises. For example, the information on a liquidity crisis facing mutual funds following the Lehman Brothers' collapse was with SEBI but RBI had to take the action. Even so, the crisis was addressed in just over six hours over mobile phones and SMSs between the regulators. RBI opened a special finance window for mutual funds.

But overlap<sup>11</sup> and unclear allocation of responsibility for markets between the RBI and SEBI has contributed to delays in the development of corporate bond markets, and derivative products in money and bond markets. Thus although corporate repurchase options (repo) is a money market instrument, CCIL, the central counterparty promoted by RBI, will not report it, in order to avoid regulation by SEBI. At present SEBI regulates the repo but RBI determines the instruments. There were long delays in implementing committee reports pertaining to these markets. The risk systems in CCIL, given the RBI guarantee, may not match those in stock exchange clearing corporations regulated by SEBI. These coordination problems should be resolved from the systemic risk perspective.

The HLCC was set up in response to a crisis, without a well thought-out structure and function. It can be strengthened instead of replacing it by another formal apex regulatory body. Legislation can mandate the objectives of systemic stability and market development<sup>12</sup>. It can plug regulatory gaps and assign responsibility with clear time lines to fulfill the objectives.

<sup>10</sup> There are turf wars. IRDA has shot down a proposal to register all financial advisors with the Financial Well-Being Board of India (FINWEB), an agency to write rules on the common minimum standards for sellers of insurance, pension and mutual fund products, as a fall out of an attack on Unit linked insurance plans by mutual funds that compete with insurers. Currently, IRDA has powers to license insurance agents and brokers.

<sup>11</sup> Other examples of overlap arise in the regulation of cooperative banks. Along with SEBI, the Department of Company Affairs is also responsible for debentures.

<sup>12</sup> EPWRF (2009) suggest creating a Financial Market Development Agency reporting to the Government as in New Zealand.



## 8. Conclusion

— Identifying and applying the basic market failures in financial markets proves useful in, evaluating reform proposals after the crisis. Emerging markets need financial development along with stability. We evaluate India's experience in terms of the basic principles, and identify major successes and potential improvements. Among the first were minimal fallout from the crisis, the use of macro and micro prudential regulation and oversight that are being generally advocated today. New technologies and innovations also contributed to developing many markets. But lacunae remain in inclusion and in market development, and we argue that better use of technology, regulatory coordination, allocation of responsibility, and goals that include stable market development would help to overcome these. Crisis lessons for emerging markets are to give priority to the development of domestic markets, ensure stability by paying attention to incentive structures and macroeconomic systemic effects, and rely on competition and technology to improve inclusion.

Regulation has to find a via media between the detailed operational rules, such as permissions for salaries and fees, inherited from control regimes and principle based regulatory forbearance relying on self-regulation. Principle-based rules can help create correct incentives, and encourage market functions, while moderating market flaws. Then regulations would be followed in spirit not only in letter. Regional coordination would be easier, even while practice can be attuned to country specific features.

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for International Economics

## The Jury Is Still out on the European Union's Crisis Performance

— Few political arrangements have been as tested by the economic and financial crisis as the European Union (EU). The EU is a relatively recent endeavour, with its origins in 1950. It has developed over a period of peace and near-uninterrupted growth. But many have predicted that faced with a big enough shock, European nation-states would reassert their sovereignty and fracture the Union.

According to the most dire predictions, the crisis may cause the EU and its offshoot the euro to unravel partly or completely – as when the oil shocks of the 1970s led to what was then labelled ‘eurosclerosis’. Indeed, by many measures, the current economic turmoil is more severe than it was then. Since the crisis started in August 2007 Brussels has been hit by plenty of bad news. The European Commission’s deregulatory agenda, pursued at least since Charlie McCreevy became Commissioner for financial services in 2004, has been implicated in the lapses in public supervision that enabled European banks to invest heavily in opaque US property-based assets, and consequently to suffer heavy losses when the subprime bubble burst.

When the crisis became acute in late September 2008 following the collapse of Lehman Brothers, the lack of coherence of member states’ responses led to questions about the very relevance of the Union. Shortly thereafter, calls by the Commission for a coordinated fiscal stimulus were ostensibly ignored by national capitals. Attempts by governments to protect “national champions” and to force them to invest at home rather than elsewhere in Europe, in banking and other sectors such as the automotive industry, flew in the face of the basic principles of a single market, as did Berlin’s efforts to obtain a favourable treatment of plants and jobs in Germany when General Motors announced the sale of Opel, its European subsidiary.

EU institutions were seen as absent bystanders at the time of key initiatives – most notably when a meeting in Paris on 12 October 2008 put a temporary end to the panic – or were focused on largely irrelevant sideshows, such as the European Parliament’s crusade

against private equity and hedge funds. Last but not least, the dire fiscal situation of members such as Greece is described as threatening the crown jewel of European integration, the euro, which many see as a fair-weather arrangement unable to sustain major crises given the lack of supporting fiscal capacity at federal level.

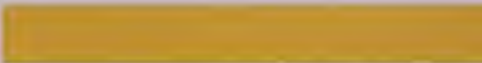
In spite of the negative headlines, however, the EU is still alive and kicking and, surprisingly, experiencing discrete and sometimes paradoxical policy successes. The European Central Bank has gained credibility through its deft crisis management. The October 2008 meeting, even though the Commission played almost no role in it, had a positive market impact that went well beyond the EU's borders. The following month, Europeans were instrumental in the emergence of the G20 discussion format that is the best hope for sustainable global economic governance.

Policy initiatives helped avert macroeconomic contagion in Central and Eastern Europe, which many observers thought nearly inevitable a year ago. The European Commission's vigorous enforcement of competition policy has preserved the integrity of the single market. With the implementation of the Larosiére Report, a blueprint for financial reform published in February 2009, the EU is creating the world's first supranational financial authorities, arguably a necessity to sustain cross-border financial integration. And the euro has so far defied prophecies of its inevitable break-up.

The EU is more resilient than it looks to the casual observer. National leaders tend to bash Brussels in their public utterances, but deep down they see the Union as a positive-sum game which they all have an interest in defending. The bureaucratic nature of the European Commission makes it an often clumsy standard-bearer for the EU. But it rests on bedrock of political commitment whose strength cannot be overestimated. The same is true of the euro.

That said, the biggest challenges still lie ahead. The EU must, by decreasing order of urgency but not of importance, address its lingering banking fragility, steer Eurozone members towards fiscal repair, adapt its representation in international discussions to become a serious global player, and make its integrated financial system sustainable through adequate regulatory reform. Each of these is a monumental task, the completion of which is far from sure.

The outcome will be determined by the Union's citizens and leaders, who have a responsibility not only to themselves but to the rest of the world as well. If the EU fails, the negative consequences will be felt well beyond its borders. If it succeeds, it will provide a compelling argument that nation-states are not the only form of political organisation with relevance in today's interdependent world.



## Strengthening Regulatory Surveillance

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## OTC Derivatives Market in India: Recent Regulatory Initiatives and Open Issues for Market Stability and Development<sup>1</sup>

*“Blaming derivatives for financial losses is akin to blaming cars for drunken driving fatalities.”*  
Christopher L. Culp

### Abstract

— The over-the-counter (OTC) derivatives markets all over the world have shown tremendous growth in recent years. In the wake of the present financial crisis, which is believed to have been exacerbated by OTC derivatives, increasing attention is being paid to analysing the regulatory environment of these markets. In this context, we analyse the regulatory framework of the OTC derivatives market in India. The paper, inter alia, seeks to prove the point that the Indian OTC derivatives market, unlike many other jurisdictions, is well regulated: Only contracts where one party to the contract is an RBI regulated entity are considered legally valid in India. A good reporting system and a post-trade clearing and settlement system, through a centralised counter party, has ensured good surveillance of the systemic risks in the Indian OTC market.

<sup>1</sup> An earlier version of this research paper was presented at the InWEnt /ICRIER Conference on “South Asian Financial Systems at Crossroads: Promoting Stability and Growth,” held in New Delhi, India on November 11, 2009. We are grateful to participants for helpful comments.



From amongst the various OTC derivatives markets permitted in India, interest rate swaps and foreign currency forwards are the two prominent markets. However, by international standards, the total size of the OTC market still remains small because credit default swaps were conspicuously absent in India until now. It appears that Indian OTC derivatives markets will grow fast once again after the present financial crisis is over. This research paper explores those open issues that are important for ensuring market stability and development. On the issue of the much discussed competition between exchange-traded and OTC-traded derivatives, we believe that the two markets serve different purposes and would contribute more to risk management and market efficiency, if viewed as complementary. Regarding the introduction of new derivative products for credit risk transfer the recent announcement of RBI to introduce credit default swaps is a welcome sign. We believe that routing of credit default swaps through a reporting platform and managing its post-trade activities through a centralised counterparty would provide better surveillance of the market. Strengthening the position of the Clearing Corporation of India Ltd. CCIL as the only centralised counterparty for Indian OTC derivatives market and better supervision of the off-balance sheet business of financial institutions are proposed as two measures to ensure the stability of the market.

## **1. Introduction**

— Since a vast majority of the financial asset classes exist only in the over-the-counter (OTC) environment, OTC markets are viewed as critical to the effective functioning of national and global financial systems. Alongside and complementary to the organised exchange markets, OTC markets have a crucial role to play in all national and international economies.

The OTC derivatives markets all over the world, including in India, have shown tremendous growth due to their flexibility, low operating cost, zero regulatory costs, developments in information technology and, above all, due to high volatility in asset prices. However, in the backdrop of the present financial crisis, which is believed to have been exacerbated by OTC derivatives, a lot of attention is being given to analysing the possible regulatory structure of OTC markets to promote stability and, at the same time, ensure market efficiency. The competition between OTC and exchange-traded derivative markets is another issue for policy makers. We assume that this competition would drive all the players to minimise transaction costs and adopt best practices.

The present research work on OTC derivative markets, seeks to achieve, inter alia, the following objectives:

- (i) To provide a brief introduction of the OTC derivatives market
- (ii) To formulate some stylised facts about global OTC markets

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- (iii) To reflect upon the present regulatory initiatives of various national and multilateral bodies towards increasing the surveillance of the global OTC market
- (iv) To explain the regulatory framework, in which the Indian OTC derivative market operates
- (v) To give more details about the market structure; and
- (vi) To elaborate the open issues impacting the new policy initiatives towards OTC and organised exchange derivatives markets.

Section 2 of the paper provides a primer on OTC derivatives market, along with some definitions. Section 3 explains why global OTC markets have gained in prominence. Section 4 offers some stylised facts about the global market, which seeks to correct some misnomers about the size of the market and its risk-potential. Section 5 briefly reports the recent policy initiatives on the global OTC markets. Section 6 describes the regulatory framework of the Indian OTC derivatives markets; it explains the recent regulatory initiatives of the Indian central bank towards improving the resilience of the Indian OTC derivatives market, including the central counterparty approach. Section 7 provides an assessment of major OTC derivative markets. Section 8 brings to light some of the open issues that need to be reviewed for any fresh policy review of the Indian OTC derivatives market and for improving the surveillance of the market. The last section provides a wrap up of the discussion with some concluding remarks.

## 2. A primer on OTC derivative markets

— A derivative is a risk transfer agreement, the value of which is derived from the value of an underlying asset. The underlying asset could be a physical commodity, an interest rate, a company's stock, a stock index, a currency, or virtually any other tradable instrument upon which two parties can agree.<sup>2</sup> Derivatives fall into two major categories. One consists of customised, privately negotiated derivatives, which are known generically as over-the-counter (OTC) derivatives. The other category consists of standardised, exchange-traded derivatives, known generically as *futures*.<sup>3</sup> “An over-the-counter (OTC) derivative is a bilateral, privately-negotiated agreement that transfers risk from one party to the other”.<sup>4</sup>

<sup>2</sup> As defined in the International Accounting Standard, a derivative (IAS 39) is a financial instrument: (a) whose value changes in response to the change in a specified interest rate, security price, commodity price, foreign exchange rate, index of prices or rates, a credit rating or credit index, or similar variable (sometimes called the 'underlying'); (b) that requires no initial net investment or little initial net investment relative to other types of contracts that have a similar response to changes in market conditions; and (c) that is settled at a future date.

<sup>3</sup> The table in Appendix I explains the basic differences between exchange-traded futures and OTC traded forwards.

<sup>4</sup> ISDA (2009)



The OTC derivatives market can be divided into five distinct categories:

- (1) Interest rate derivatives;
- (2) Foreign exchange derivatives;
- (3) Credit derivatives;
- (4) Equity linked derivatives ; and
- (5) Commodity derivatives

The most important products in the derivatives markets are interest rate derivatives (henceforth IRD), followed by foreign exchange derivatives (henceforth FED). Whereas the former accounted for 70 percent of market value at the start of 2007, the latter had about 10 percent of the market value. Credit default swaps (CDS), which became the third largest traded OTC product accounted for seven percent of market value. The derivatives relating to equity and commodities, taken together, account for 13 percent of market value at the start of 2007.<sup>5</sup> This paper focuses primarily on the first three types in the above list. The equity linked and commodity derivatives are not included in this research work.

### **3. Why the global OTC derivatives market is important**

— The global OTC market has grown both in terms of size as well as in terms of its relative position vis-à-vis the exchange-traded derivatives market and the exchange-traded cash equities. Recent estimates by Bank for International Settlement (BIS) put the notional value of the instruments traded on global OTC derivatives market at \$684<sup>6</sup> trillion at end-June 2008.<sup>7</sup> The total size of the OTC market can be appreciated by comparing it with the equivalent exchange-traded derivatives. Thus, one estimate suggests that the global OTC derivative contracts were some eight times greater than the equivalent exchange traded derivatives.<sup>8</sup> It is interesting to note that the value of daily turnover in exchange traded derivatives in London is some 25 times greater than the value of daily turnover in exchange traded cash equities.<sup>9</sup> The global OTC derivatives market has also grown very fast; thus, the notional

<sup>5</sup> Estimates based on Jones (2009)

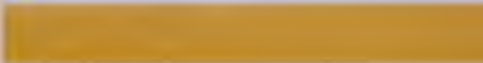
<sup>6</sup> All \$ figures are in US dollars.

<sup>7</sup> The size of the market has fallen to \$592 trillion at the end of December, 2008 due to the global financial crisis. See BIS (2009) report on the global OTC derivative market activity for more details.

<sup>8</sup> According to BIS surveys, the notional value of all exchange-traded contracts was estimated at \$82.0 trillion at the end of June 2008

<sup>9</sup> Jones (2009), p. 5





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amount outstanding has increased from \$72 trillion in 1998 to \$684 trillion in June 2008.<sup>10</sup> However, several indicators suggest that the use of OTC in general, and that of CDS in particular, declined in the wake of the recent financial crisis.

One has to look at the economic significance of OTC derivatives to understand its contribution to the financial markets' efficiency. The following arguments are often given to support the growth of this market:

- (i) OTC markets promote the price discovery process in financial markets and thereby improve allocational and operating efficiencies of intermediaries and market participants.
- (ii) OTC markets provide liquidity to financial markets.
- (iii) OTC markets help in risk management inherent in underlying assets by transferring the risk to the party, which can shoulder it the best.
- (iv) A well-developed OTC market would provide financial institutions with tools needed to manage risks associated with financial globalisation.
- (v) Currency and interest rate derivatives are important for monetary policy also.
- (vi) Competition between OTC and exchange traded derivatives markets can drive players to minimise transaction costs and adopt better practices.

The enormous size and fast growth of the OTC markets has attracted the attention of regulators/supervisors and market participants alike. The global OTC markets (particularly, some products, such as credit default swaps (CDS) or credit default obligations (CDO) are viewed by some as an amplifier of the stress in the present global financial crisis. The more common criticisms relate to the fact that OTC derivatives markets are less transparent, have more leverage, have weaker capital requirements and contain elements of hidden systemic risk.

## 4. Stylised facts on global OTC

— The facts and ideas mentioned in this section offer an insight into the riskiness of the OTC derivatives market. Using statistics compiled by the Monetary and Economic department of the Bank for International Settlements (BIS) in its surveys of the global OTC derivatives market activity and by the International Swaps and Derivatives Association (ISDA) in its surveys of market participants as the base, we have tried to prove that the risk volume in the OTC market is not based on the notional value of the outstanding contracts.

<sup>10</sup> BIS (2008), p. 6

The following stylised facts are relevant in this regard:

1. Nominal or notional amounts outstanding on all contracts (\$684 trillion as of end-June 2008 as per BIS statistics) are the gross notional value of all deals concluded and not yet settled on the reporting date. It provides a measure of market size and a reference point from which contractual payments are determined in a derivatives market. However, such amounts are generally not truly at risk. The amount at risk in derivatives contracts are a function of the price level and/or volatility of the financial reference index used in the determination of contract payments, the duration and liquidity of the contracts, and the creditworthiness of counterparties. **Gross market values** provide a more accurate measure of the financial risk transfer taking place in the derivatives markets. Thus, gross market values, which measure the cost of replacing all existing contracts, are a better measure of market risk than notional amounts. According to the BIS survey, the gross market value of the global derivatives markets was \$33.89 trillion as of end-December 2008.<sup>11</sup> It would be important to note that the gross market values at current market prices provide a measure of the economic significance that is readily comparable across markets and products.
2. The term “gross” in gross market values is used to indicate that contracts with positive or negative replacement values with the same counterparties are not netted, nor are the sums of positive and negative contract values within a market risk category set-off against one another. Thus, one has to find out the **gross credit exposure**, which represents the gross value of contracts that have a positive market value after taking account of legally enforceable bilateral netting arrangements. Gross credit exposure represents the aggregated market values and shows the payment flows at risk. According to the BIS surveys, the gross credit exposure of the global OTC derivatives market has increased from \$2.6 trillion as of end-June 2007 to \$5.0 trillion as of end-December 2008.<sup>12</sup> This reinforces the argument that the payment flows at risk increased and almost doubled during the period.
3. In a bilateral OTC contract, where market participants trade directly with one another, management of counterparty risk – the risk that the person or firm on the other side of the deal will fail to live up to what is contractually agreed – has two components: *collateral* and *bilateral netting*.<sup>13</sup> In the collateral component, the parties limit the counterparty risk

<sup>11</sup> The largest increase in the gross market value between June 2008 and December 2008 occurred in the segment interest rate derivatives, where declining interest rates resulted in a notable 99 percent increase in the gross market value to \$18.4 trillion. BIS (2009), p.1

<sup>12</sup> BIS (2009), p. 7

<sup>13</sup> The term “gross credit exposure” mentioned in point 2, shows the impact of bilateral netting. Implicitly, bilateral netting helps reduce collateral requirements! The ISDA survey (2009) indicates that virtually all large banks rely on some form of bilateral netting agreement to control counterparty exposure.



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by requiring the daily posting of collateral reflecting the mark-to-market value of the contracts. Collateral agreements can be customised to reflect the contracting parties' assessment both of the riskiness of the position and of each other's credit quality. The posting of collateral implies that actual counterparty exposures are smaller than market values would suggest. Surveys conducted by the International Swaps and Derivatives Association (ISDA) indicate that roughly two-thirds of OTC derivatives exposures are collateralised and the estimated amount of collateral in use at the end of 2008 was approximately \$4.0 trillion.

4. The uncollateralised part of the market shows the true exposure, with a high potential for credit risk and so-called "ripple-effects". If we collate the numbers from the previous points, the gross credit exposure came to \$5.0 trillion at the end of 2008. Of that, an estimated \$4.0 trillion was in collateral, while the uncollateralised OTC derivatives exposure at the end of 2008 came to about \$1.0 trillion. It is this part of the OTC market, which supervisory authorities need to focus on for surveillance.
5. Cash is the most common form of collateral used in the global OTC derivatives market and it continues to grow in importance. It stood at almost 84 percent of collateral received and 83 percent of collateral delivered during 2008. The use of government securities as collateral also grew in 2008, with nine percent of collateral received and 15 percent of collateral delivered in 2008 being in the form of government securities.<sup>14</sup> Other forms of collateral, such as corporate bonds and equities, were used less during the year. Most collateral agreements amongst firms were with hedge funds and institutional investors (50 percent) followed by corporates (15 percent) and banks (13 percent).
6. Concentration in the global OTC derivatives market appears to have risen in recent years, although it remains low on average. Concentration tends to be the lowest in foreign exchange and interest rated derivatives, where the Herfindahl index (HI)<sup>15</sup> is in the range of 400 to 700 in the major currencies. Such values are below what some economists would consider an oligopolistic market.<sup>16</sup> It is relevant to note that the most active players, who are end users in the market, are large international banks, securities firms

<sup>14</sup> ISDA (2009, p.4)

<sup>15</sup> The Herfindahl index represents a measure of market concentration and is defined as the sum of the squares of the market shares of each individual institution. It ranges from 0 to 10000. The more concentrated the market, the higher the measure becomes. If the market is fully concentrated (only one institution), the measure will have the maximum value of 10000.

<sup>16</sup> A market with nine dominant firms of equal market share, having a joint market share of 80 percent, would have an HI of just over 700 and an HI of 500 would correspond to 13 dominant firms. .



and multinational companies. The fact that there are fewer participants in the market hints at the wholesale character of the market.

7. In the five OTC derivatives markets (mentioned in Section 2), the euro is either the predominant currency or the second most important currency after the US dollar. BIS reports that the US dollar is the predominant currency in the OTC foreign exchange derivatives, with a 42 percent share in the notional amounts outstanding. In the interest rate swaps, 36 percent of the market was denominated in euro.<sup>17</sup> The transactions by counterparties located in the European Union (EU) represent a sizable share of the OTC derivatives markets. The counterparties located in euro area countries handled \$308 trillion or 36 percent of the total global business.
8. The global OTC derivatives market is concentrated largely in the United Kingdom, which has 43 percent of the overall market by value and the United States, which has 24 percent.<sup>18</sup> Most of the cross-border OTC derivatives are concentrated in G-10 countries, though the exposure of the residents of emerging markets has increased over time.<sup>19</sup>

## **5. Recent policy initiatives on global OTC market: CCP as the most dominant solution**

— In the context of the recent financial market turbulence, concerns regarding the limited development of post-trading infrastructure for OTC derivatives have intensified. It is argued often that the lack of a good post-trading infrastructure not only implies operational inefficiencies and risks but also hampers effective counterparty risk management and market transparency.<sup>20</sup> Because of the large size of the OTC derivatives markets and their close linkage with the cash markets, these markets seem to have acted as a contagion channel during the recent financial market turbulence. Against this background, measures to improve market organisation in general, and to strengthen the post-trading infrastructure of the OTC derivatives markets, in particular, have gained momentum during the past year, 2009.<sup>21</sup>

<sup>17</sup> European Central Bank (2009, p. 16)

<sup>18</sup> Jones (2009) p. 1

<sup>19</sup> The share of exposure to emerging market countries appears to be trending up. A survey of US data on counterparty credit exposure arising from derivative contracts estimated the exposure to the residents of emerging markets at 8 percent. See Sally (2009) for details.

<sup>20</sup> ECB (2009) p. 7

<sup>21</sup> These measures are in line with the mandate of the Financial Stability Forum. See Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience, 7th April 2008.

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The introduction of Centralized Counter Parties (CCPs) for OTC credit derivatives<sup>22</sup> has turned out to be the most common initiative for lowering counterparty risks and improving transparency in the market. A CCP is an independent legal entity, which interposes itself between the buyer and seller of a derivative security. When trading through a CCP, the single contract between two initial counterparties, which is the hallmark of an OTC trade, is still executed. However, it is replaced by two new contracts – between the CCP and each of the two contracting parties. At this point, the buyer and seller are no longer counterparties to each other – instead, each acquires the CCP as its counterparty. The structure has three clear benefits:

- (a) It improves the management of counterparty risk;
- (b) It allows the CCP to perform multilateral netting of exposures as well as payments<sup>23</sup>; and
- (c) It increases transparency by making information on market activity and exposures – both prices and quantities – available to regulators and the public.<sup>24</sup>

One crucial characteristic of a CCP is that it mutualises credit and market risk, spreading it among all of its participants. However, the capacity of a CCP to absorb risk is determined by:

- (i) the equity capital injected by owner-members
- (ii) the margin it collects and
- (iii) the practice of marking positions to market

Existing derivatives CCPs generally collect an initial margin from its members to cover potential future exposure in the event that a clearing member defaults. The initial margin, which is a form of collateral, is typically delivered either in cash or in the form of securities that have high credit quality and can easily be sold. CCPs control risks by marking positions to market and requiring that a variation margin be paid and received each day. In periods of high volatility, positions may be marked to market intraday to limit the size of uncollateralised exposures.<sup>25</sup>

<sup>22</sup> Central counterparties for other OTC derivatives, such as interest rate swaps, have been in place for a decade (Swap Clear, a UK-based CCP for interest rate swaps was established in 1999), and those for futures have, in some cases, been around for more than a century.

<sup>23</sup> In 2008, multilateral netting facilitated by third party operators, such as TriOptima and CreditEx eliminated more than \$30 trillion of CDS notional principal, which was about three-fourths of total outstanding amounts at the end of the year.

<sup>24</sup> Cecchetti, Gynthelberg and Hollanders (2009) p. 46

<sup>25</sup> The information in this section draws upon the work done by Cecchetti, Gynthelberg and Hollanders (2009) on the CCPs.



Introducing CCPs would improve transparency by allowing for easy collection of high frequency, market-wide information on market activity, transaction prices and counterparty exposures for market participants, who rely on them. The centralisation of information in a CCP makes it possible to provide market participants, policymakers and researchers the information to better gauge developments in various markets on the position of individual market participants.<sup>26</sup>

The year 2009 has witnessed the introduction of several new CCPs for credit default swaps (CDS) and more are likely to follow. In the United States, ICE Trust (owned by the Intercontinental Exchange (ICE)) became operational in March 2009.<sup>27</sup> In Europe, two CCPs – ICE Clear Europe and Eurex Credit Clear – began operations at the end of July 2009. A third CCP, LCH Clearnet, is expected to become operational by the end of 2009. These CCPs for CDSs focus on making it possible for market participants, in particular for larger dealers, to reduce counterparty exposures to the more actively traded, single-name CDS contracts and to standardise CDS indices.

It is relevant to note that information on outstanding trades in the CDS market are now stored in a centralised trade data warehouse. The Depository Trust and Clearing Corporation (DTCC) established a trade information warehouse (TIW) in November 2006 to provide a comprehensive trade database containing the primary record of each CDS contract and is, therefore, a key source of industry statistics for public authorities and markets alike. According to its own assessments, DTCC's data warehouse stores all electronically confirmed CDS trades and about 96 percent of all global CDS trades.<sup>28</sup>

## **6. OTC derivatives market in India: The regulatory framework<sup>29</sup>**

— Given the nature of the derivatives market, a sound regulatory framework, which defines financial infrastructure, product design and scope for innovation, is inevitable. Such a regulatory framework would define the market participants, the counterparties,

<sup>26</sup> Cecchetti, Gynthelberg and Hollanders (2009) p.51

<sup>27</sup> Until very recently, CDSs were cleared solely on a bilateral basis.

<sup>28</sup> European Central Bank (2009) p.21

<sup>29</sup> For regulatory purposes, derivatives have been defined in the Reserve Bank of India Act, as follows: "derivative" means an instrument, to be settled at a future date, whose value is derived from change in interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called "underlying"), or a combination of more than one of them and includes interest rate swaps, forward rate agreements, foreign currency swaps, foreign currency-rupee swaps, foreign currency options, foreign currency-rupee options or such other instruments as may be specified by the Bank from time to time.



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the nature of products and transactions, the method of clearance and settlement and, ultimately, the level of risk in the market as a whole. Further, it would also enable the regulator to collect market information from primary sources. Saksena<sup>30</sup> states, “emergence of derivatives market will normally require legislation, which addresses issues regarding legality of derivatives instruments, specifically protecting such contracts from anti-gambling laws because these involve contracts for differences to be settled by exchange of cash, prescription of appropriate regulations and powers to monitor compliance with regulation and power to enforce regulations”. Thus, understanding the historical evolution of regulatory initiatives is critical to understand the market microstructure, problems and prospects for future reforms.

Though some kind of OTC derivatives trading was prevalent in India in the pre-independence era, the Securities Contract Regulation Act 1956 (SCRA) had banned all kind of derivatives trading in India to curb detrimental speculation in securities. Further, forward trading in securities was banned in 1969. There were two influential committees constituted, namely the L. C. Gupta committee and J. R. Varma Committee, to review the need for and develop a regulatory framework for derivatives trading in India. The former, set up by SEBI in November 1996, has strongly favoured, “the introduction of financial derivatives in order to provide the facility for hedging in the most cost-efficient way against market risk”, especially “equity derivatives, interest rate derivatives and currency derivatives”. Further, the committee recommended that the derivatives be declared as “securities” under SCRA. On the regulatory structure, the committee maintained that there is a need for “exchange-level regulation by ensuring that the derivative exchanges operate as effective self-regulatory organisations under the overall supervision of SEBI”. The committee has also suggested by-laws for derivatives exchanges and clearing corporations. Other important suggestions include the establishment of a separate clearing corporation, mark to market margins, maximum exposure limits, mandatory registration of brokers with SEBI and specification of capital adequacy for brokers. The second Advisory Committee on Derivatives under the chairmanship of Prof. J.R. Varma in 1998 had discussed the measures to mitigate the risk in derivatives trading, especially for single stock futures, stock options and index futures. Both the committees are of the view that stock exchanges, due to transparency, settlement guarantee and better risk management, are better equipped to undertake trading in derivatives.

The ban was revoked subsequently and a number of derivatives such as currency options, interest rate and currency swaps and commodities futures were introduced. Further, the legal impetus came when the Securities Contracts (Regulation) Amendment Bill was introduced in the Lok Sabha in 1998. Subsequently, the SCRA was amended in 1999 to include

derivatives in securities so that the derivatives<sup>31</sup> could also be traded on the exchanges and the regulatory mechanisms that are already in place for securities trading would be applicable for derivatives as well.

The regulatory structure of the OTC derivatives market at present in India is as follows: The Reserve Bank of India Act, 1936 (as amended on 2006) empowers RBI to regulate OTC products such as interest rate derivatives, foreign currency derivatives and credit derivatives. Thus, all exchange traded derivatives are regulated by the respective exchanges and overseen by SEBI whereas the OTC traded derivatives are completely within the purview of the RBI.

The RBI, through its guidelines had introduced interest rate swaps (IRSs) and forward rate agreements (FRAs) to be traded in the OTC markets since 1999 “with a view to further deepening the money market as also to enable banks, primary dealers and all-India financial institutions to hedge interest rate risks”.<sup>32</sup> The RBI Technical Advisory Committee Report on Interest Rate Futures states, “In the wake of deregulation of interest rates as part of financial sector reforms and the resultant volatility in interest rates, a need was felt to introduce hedging instruments to manage interest rate risk. Accordingly, in 1999, the Reserve Bank of India took the initiative to introduce OTC interest rate derivatives, such as IRS and FRA<sup>33</sup>.”

## **6.1 OTC derivatives market in India: recent regulatory initiatives**

— The Reserve Bank of India (Amendment) Bill, 2006 has legalised all derivatives trading where at least one of the parties in transaction is a RBI regulated entity. To start with, RBI has allowed all scheduled commercial banks (SCBs) excluding Regional Rural Banks, primary dealers (PDs) and all-India financial institutions to use IRS and FRA for their own balance sheet management and non-financial corporations to use IRS and FRA to hedge their exposures. Though this limits the depth of the market, it provides some kind of transparency in the market and enables the regulator to assess the level of leverage from the

<sup>31</sup> The Securities Laws (Amendment) Act, 1999 has formally defined derivatives as, “(a) a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security, and (b) a contract which derives its value from the prices or index of prices or underlying securities.” (starting 22-02-2000). Further, the amendment states, “Notwithstanding anything contained in any other law for the time being in force, contracts in derivative shall be legal and valid if such contracts are, (a) traded on a recognized stock exchange; (b) settled on the clearing house of the recognized stock exchange, in accordance with the rules and bye-laws of such stock exchange”.

<sup>32</sup> Ref.No.MPD.BC.187/07.01.279/1999-2000

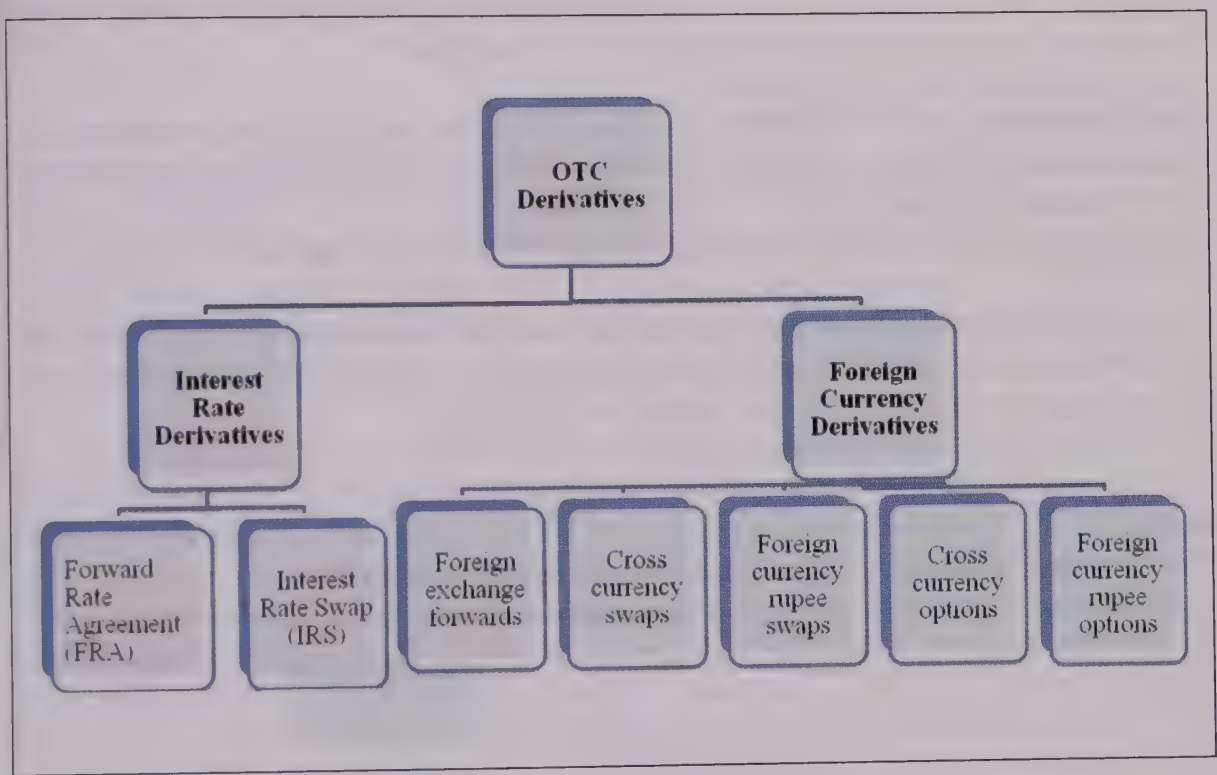
<sup>33</sup> RBI (2008) available at <http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/86253.pdf>



## Strengthening Regulatory Surveillance

mandatory disclosure of the regulated entities. The graph below shows the OTC derivative products permitted in India:

**Graph 1**  
**OTC derivative products permitted in India**



Further, as part of a gradual liberalisation process, comprehensive guidelines for derivatives trading in India were released by the RBI in 2007-08. The guidelines were aimed to lay down the general principles for derivatives trading, management of risk and sound corporate governance requirements, which also include a conduct code for the market makers.

### 6.2 Indian approach to centralised clearing

— The RBI issued a notification on a reporting platform for OTC interest rate derivatives in 2007 stating that, “it is necessary to have a mechanism for transparent capture and dissemination of trade information as well as an efficient post trade processing infrastructure for transactions in OTC interest rate derivatives, to address the attendant risks”. It was



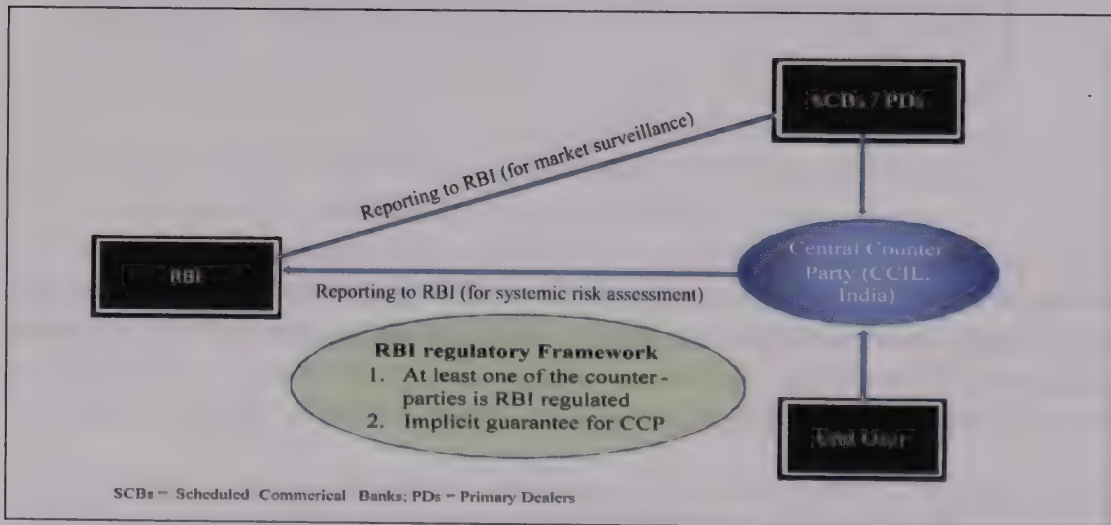
announced in this context that, to begin with, CCIL<sup>34</sup> would start a trade-reporting platform for rupee interest rate swaps. The notification states<sup>35</sup>:

1. "CCIL has developed a reporting platform in this regard, which would capture the transactions in OTC interest rate derivatives (interest rate swaps and forward rate agreements (IRS/FRA)). The platform would be operationalised by August 30, 2007.
2. All banks and primary dealers are required to report all their IRS/FRA trades on the reporting platform within 30 minutes from the deal time.
3. Client trades are not to be reported.
4. Banks and Primary Dealers (PDs) may also ensure that details of all the outstanding IRS/FRA contracts (excluding the client trades) are migrated to the reporting platform, by September 15, 2007.
5. Detailed operational guidelines in this regard would be made available by CCIL".

As per the guidance of RBI, CCIL has commenced the functioning of its reporting platform for transactions in OTC interest rate derivatives i.e. IRS and FRA in 2007 and non-guaranteed settlement of OTC rupee derivatives in 2008.

Graph 2

CCP approach: regulatory framework for Indian OTC derivatives



34 The Clearing Corporation of India Ltd. (CCIL) promoted by State Bank of India (SBI), Industrial Development Bank of India (IDBI), ICICI Ltd., LIC (Life Insurance Corporation of India), Bank of Baroda, and HDFC Bank, started in 2002 to boost the efficiency of and safety in debt and forex markets in India. CCIL clears, settles and functions as the central counterparty to all trade in both spot and forward markets in both debt and foreign exchange.

35 DMD/11.08.15/809/ 2007-08 available at <http://rbi.org.in/scripts/NotificationUser.aspx?Id=3780&Mode=0>

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Graph 2 is a flow chart showing the CCP approach within the regulatory framework for the Indian OTC market. Introducing CCIL as the central counter party in OTC derivatives post-trading clearance has been viewed as an important milestone for Indian money markets. Since one of the counterparty in an OTC transaction has to be a RBI regulated entity and has to report to it on a regular basis, the Indian model provides an automatic surveillance on OTC exposure of all banks in India. Additionally, the use of CCIL as a reporting platform on a real-time basis helps the RBI keep a real-time watch on systemic risk.

Depending on RBI-stipulated capital requirements, the CCP guarantee would reduce capital requirements for banks up to 80 percent by eliminating the counterparty risk. Some believe that “with CCIL guarantees, the volume should go up in these markets... as there is no counter-party risk involved”.<sup>36</sup> At present, the CCIL requires members to contribute a minimum of five percent in cash or in eligible Government of India securities for the service it renders. Further, it takes initial margin (including spread margin), mark to market margin and contributions to a default fund from the members.<sup>37</sup>

The RBI (2009) states “with a view to accessing complete information on this segment of the market, it has now been decided to collect the details of client trades in respect of IRS transactions. Accordingly, SCBs and PDs are advised to report the IRS transactions entered into with their clients in the format enclosed on a weekly basis”.<sup>38</sup> Further, RBI requires all trading parties “to submit counter party and contract wise marked to market (MTM) values of derivative (viz., forwards, swaps, FRA, futures, options, credit derivatives, etc.,) contracts on gross basis (i.e., positive as well as negative market/fair values) in equivalent US Dollar with details of currency of settlement, country of the counter party, country and sector of ultimate risk, to their respective head/principal offices”.

The RBI annual report 2009 states that “a clearing and settlement arrangement on a non-guaranteed basis has been put in place for the OTC interest rate derivatives trades since November 27, 2008. By March 2009, 13 members participated in the non-guaranteed settlement of OTC rupee interest-rate derivatives”.<sup>39</sup>

<sup>36</sup> Roy (2009)

<sup>37</sup> Roy (2009)

<sup>38</sup> see RBI notification on “Reporting of OTC Interest Rate Derivatives – Client Level Transactions” FMD/MSRG/40/01.14.001/2009-2010 available at: <http://rbidocs.rbi.org.in/rdocs/notification/PDFs/COTCI051009.pdf>

<sup>39</sup> RBI (2009)

Risk management at the CCIL is a high priority because the organisation is systemic. The RBI, recognising the systemic nature of CCP, ensured that CCIL is closely monitored. Further, to eliminate the possibility of CCIL not being able to honour a contract, it maintains a guarantee fund and has a line of credit of approximately \$86 million for government securities and \$150 million for derivatives from its member banks. To ensure good corporate governance, CCIL follows International Organisation of Securities Commission (IOSCO) best practices.<sup>40</sup>

## **7. Present structure of the OTC derivatives markets in India**

— There is no comprehensive source for assessing the total volume of transactions carried out on the Indian OTC derivatives market. Therefore, the information presented in this section draws upon various sources and is an attempt to assess the Indian OTC derivatives market under two major groupings: interest rate derivatives and foreign currency derivatives. Since the markets for interest rate swaps (in the category of interest rate derivatives) and foreign currency forwards (in the category of foreign currency derivatives) enjoy significant position in the Indian OTC space, the following description is related mostly to these two markets. A brief description of the credit derivative swaps (CDS), which are not permitted in India so far, is given in the section on open issues.

### **7.1 Interest rate derivatives (IRDs)<sup>41</sup>**

— IRDs were introduced in India when the RBI permitted banks/FIs/PDs to undertake interest rate swaps/forward rate agreements in July 1999. IRDs have been slow to emerge in India. An OTC market has sprung up primarily involving interest rate swaps (IRS)<sup>42</sup> and forward rate agreements (FRA).<sup>43</sup>

<sup>40</sup> RBI (2007) reports that "CCIL's risk management practices are periodically evaluated against recommendations for CCP [by IOSCO]" page 24 of "Report on Oversight of Payment Systems in India".

<sup>41</sup> As interest rates have fallen in India, companies have swapped their fixed rate borrowings into floating rates to reduce funding costs.

<sup>42</sup> In an interest rate swap, a counterparty may receive a floating rate (linked to a benchmark rate) and pay a fixed rate.

<sup>43</sup> A forward rate agreement allows a party to lock in the interest rate.



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### 7.1.1 Interest rate swaps

— A single currency interest rate swap is an exchange of cash flows between two counterparties on the basis of predetermined specifications. It is an obligation between them for exchange of interest payments or receipts on investments, in the same currency on an agreed amount of notional principal at regular intervals, over an agreed time period. In the case of rupee IRS, banks, primary dealers and financial institutions are allowed to enter into swaps for the purposes of hedging their exposure as well as for market making. Other corporate customers are allowed to enter into rupee IRS only for the purpose of hedging the interest rate risk on an underlying asset/liability. In the case of non-rupee IRS, all participants are allowed to enter into these transactions only to hedge an underlying exposure. Market quotations for swaps are usually quoted against standard benchmark/index rates and non-amortising notional principal, free from the margin actually payable in the cash market by the relevant counterparties. The rate is thus quoted flat and any amortising structure that envisages a customised rate is adjusted accordingly.

Though the Reserve Bank of India has allowed scheduled commercial banks, primary dealers and all-India financial institutions to make markets in IRS since July 1999 with a view to deepen the money market and to enable these institutions to hedge interest rate risks, the market which has taken off seriously so far, is the overnight index swaps (OIS)<sup>44</sup> based on Mumbai Interbank Offered Rate (MIBOR) benchmark. (See Table 1 for details). MIBOR based OIS accounts for over four-fifth of this market and has registered significant growth (14 fold) over the last four years. Other benchmarks (such as MIFOR<sup>45</sup> and INBMK<sup>46</sup>) and benchmarks of tenor beyond overnight have not become popular due to the absence of a vibrant inter-bank term money market.<sup>47</sup> This is viewed as an area of concern from the long-term efficiency of the market.<sup>48</sup>

<sup>44</sup> The Overnight Index Swap (OIS) is an INR interest rate swap where the floating rate is linked to an overnight inter-bank call money index. The swap is flexible in tenor, i.e., there is no restriction on the tenor of the swaps. The interest would be computed on a notional principal amount and settled on a net basis at maturity. On the floating rate side, the interest amounts are compounded on a daily basis based on the index.

<sup>45</sup> MIFOR (Mumbai Interbank Forward Offered Rate) is the yield based on forex forward premiums; Reuters publishes 1m, 3m, 6m 1yr MIFORs, which are the market standard for this benchmark.

<sup>46</sup> Another benchmark, which is gaining popularity in recent times is called INBMK; it is an acronym for Indian Benchmark rate published by Reuters. This effectively presents a yield for government securities for a respective tenor.

<sup>47</sup> The NSE publishes MIBOR (Mumbai Interbank Offered Rate) rates for three other tenors viz., 14-day, 1month and 3 month. The other longer tenor benchmark that is available is the yield based on forex forward premiums. This is called MIFOR (Mumbai Interbank Forward Offered Rate). Reuters published 1m, 3m, 6m 1yr MIFORs are the market standard for this benchmark.

<sup>48</sup> CFSA (2009) p.217

**Table 1**  
**Interest rate swaps – outstanding notional principal**  
 (Benchmarkwise Details), (Amount in Rs. Crore)

Item/Year	March 2005	March 2006	March 2007	March 2008
Total	10,81,867	18,29,700	37,07,342	80,18,647
% Growth (Y-o-Y)		69	103	116
MIBOR/OIS	4,76,744	10,75,917	27,37,244	66,93,065
% Share in total	44.07	58.80	73.83	83.47
% Growth (Y-o-Y)		126	154	145
MIFOR	5,64,262	7,01,305	8,72,000	12,54,255
% Share in total	52.16	38.33	23.52	15.64
% Growth (Y-o-Y)		24	24	44
INBMK	20,070	34,110	82,103	48,574
% Share in total	1.86	1.86	2.21	0.61
% Growth (Y-o-Y)		70	141	-41
Others	20,792	18,369	15,995	22,753
% Share in total	1.92	1.00	0.43	0.28
% Growth (Y-o-Y)		-12	-13	42
Notes: MIBOR: Mumbai Inter-Bank Offer Rate      MIFOR: Mumbai Inter-Bank Forward Offer Rate OIS: Overnight Index Swap      INBMK: Indian Benchmark				

Source: RBI

The total volume of transactions in the above table is based on the outstanding notional amounts, which provides a measure of market size and a reference point for contractual payments. However, such amounts are not truly at risk.<sup>49</sup> To get a more accurate picture of the financial risk transfer taking place in the derivatives markets, one should analyse the gross market values. The gross market value of all IRS contracts on December 10, 2009 as estimated by CCIL, was \$16.9 billion.<sup>50</sup> If we assume that 80 percent of the IRS contracts have an embedded netting agreement<sup>51</sup>, the gross credit exposure would be approximately

<sup>49</sup> Refer to Section 4 for details on this point.

<sup>50</sup> The rupee data from CCIL was converted at the exchange rate of 46.6 Indian rupees to US \$.

<sup>51</sup> If all of these IRS contracts have no embedded netting agreements, the gross credit exposure of all IRS contracts would be 50 percent of \$16.87 billion. As per definition, on an aggregated basis, the total of marked to margin positive values and negative values should be equal, because the loss of one party is a gain for the other.

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\$1.69 billion (See Table 2 for details). Furthermore, if we assume that two-thirds of the derivative exposure is collateralised, only \$556 million worth of exposure is uncollateralised. It is this amount, which represents the potential credit risk and needs to be monitored carefully. With the continuous growth of the OTC markets, a trend analysis of the uncollateralised exposures will give a better perception about the market.

**Table 2**  
**Computation of gross credit exposure in IRS market**

		(Billion \$)
	Global IRS*	Indian IRS*
Gross Notional Value of IRS contracts (GNV)	328,114	733.82
Gross Market Value (GMV)	16,573	16.87
GMV as a % of GNV	5.05 percent	2.30 percent
Gross Credit Exposure (GCE) before netting	8,286	8.44
GCE as a % of GMV	50 percent	50 percent
Gross Credit Exposure (Assuming that 80 percent of the contacts are netted out)	1,657	1.69
Potential Credit Risk (Assuming that 67 percent of the exposure is collateralised)	547	0.56
*The values do not include potential future exposure The data for Global IRS is as of December 2008 The data for Indian IRS is as on 10.12.2009		

Source: BIS (May 2009) for the Global IRS Market and CCIL for Indian IRS Market

When we analyse the activities in the IRS from the point of active participants, it is striking that foreign banks dominate the IRS (MIBOR) market – they accounted for about 80 percent of the deals carried out during November 2009, followed by the private banks operating in India.<sup>52</sup> The competitive advantage of foreign, as well as private banks could be traced to their expertise in this area and the use of appropriate technology for the purpose.

<sup>52</sup> CCIL (2009), p. 11



CCIL started reporting transactions of OTC interest rate swaps (IRS) through its reporting platform from 2007. The monthly data provided by CCIL reveals that the growth in the notional amount of IRS based on both MIFOR and MIBOR started decelerating from the beginning of the year 2008. Thus, The IRS derivatives segment started shrinking as year-on-year growth rates turned negative in the peak of the financial crisis. Even though Indian financial sector does not have direct exposure to the toxic assets abroad, the derivatives market does get severely affected through expectations (created by the uncertainty in the market) and through credit crunch (due to drying up of foreign funds).

### **7.1.2 Forward rate agreement (FRA)**

— A forward rate agreement (FRA) is an agreement to lend/borrow money for a specified period on a notional principal on a particular date in the future at a rate that is determined today. It is an agreement where both parties agree to deal at a particular interest rate for a specific period decided beforehand for a predetermined amount. It is like a forward contract where the underlying is a loan or deposits, both notional. FRAs are OTC contracts. The difference between the FRA rate and the actual market rate on the maturity date is paid by one party to the other. If the market rate is higher than the FRA rate, the seller pays the buyer whereas in case of market rate being lower than the FRA rate, the buyer pays the seller. All FRAs are executed as OTC deals between two counterparties who are comfortable trading with each other. These can also be intermediated by a broker. In either case, each counterparty takes on the credit risk of the other, typically for durations of two weeks to six months. The reference rate that is typically used to settle these products, are short-term rates that are polled from the market using a methodology similar to that of LIBOR. Of these, the NSE Mumbai InterBank Offer Rate (MIBOR) polled by the NSE is a well-known benchmark.<sup>53</sup>

Despite the fact that FRAs were given regulatory clearance, the interbank segment of this is completely absent in India due to illiquidity in this market. One possible reason could be the lack of a suitable benchmark rate for this market.

## **7.2 Foreign currency derivatives**

— The origins of the Indian foreign exchange market can be traced to 1978 when banks were permitted to undertake intra-day trading in foreign exchange. However, the market started growing only after the liberalisation process picked up in 1992. The continuous improvement

<sup>53</sup> Shah, Thomas and Gorham (2009), p.93

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in market infrastructure has had its impact in terms of the enhanced depth, liquidity and efficiency of the foreign exchange market. The turnover in the Indian foreign exchange market has grown significantly in both the spot and derivatives segments in the recent past. The daily average turnover saw a substantial pick up from about \$5 billion during 1997-98 to \$18 billion during 2005-06. The turnover has risen further to \$49 billion during 2007-08.<sup>54</sup> The inter-bank to merchant turnover ratio<sup>55</sup> has halved from 5.2 during 1997-98 to 2.6 during 2005-06, reflecting growing participation in the merchant segment of the foreign exchange market.

The foreign exchange (forex) market is divided into two segments: OTC (which includes spot, forwards and swaps) and exchange-traded currency futures. In June 2009, the size of India's forex market is estimated to have a turnover of \$34 billion per day: of this, the OTC forex market is estimated to have a \$33 billion turnover a day while the exchange-traded currency futures market stands at \$1 billion.<sup>56</sup> As shown in Table 3, within the OTC segment, the spot market has remained the most important one, accounting for 50 percent of the total turnover in 2007-08.<sup>57</sup> The foreign exchange swaps are the dominant form of OTC derivatives accounting for over 30 percent of the total turnover, followed by forwards (12 percent of the total turnover) in 2007-08. Rupee-foreign exchange options, which were allowed in July 2003, have remained insignificant despite being in existence for more than six years.

**Table 3**  
**Indicators in the foreign exchange market activity**

Indicator/Year (Apr-Mar)	1997-98	2005-06	2007-08	2008-09
Total Annual Turnover (\$ in Billion)	1,306	4,404	12,305	12,092
Average daily turnover (\$ in Billion)	5.0	18.0	49.0	48.0
Inter-bank to Merchant segment ratio	5.2	2.6	2.5	2.7
Spot/ Total Turnover (percent)	51.4	50.5	49.7	45.2
Forward/ Total Turnover (percent)	12.0	19.0	12.6	21.1
Swap/ Total Turnover (percent)	36.5	30.5	31.1	33.6
FCY/INR in Total Turnover (percent)	66.2	64.9	60.0	65.5

Source: RBI

54 The compounded annual growth rate (CAGR) was close to 25 percent between 1997-98 and 2007-08. See CFSA (2009) p.202

55 Merchant segment of the foreign exchange market shows transactions with parties other than banks and inter-bank segment shows transactions with banks, including RBI.

56 IDFC SSKI (2009) p. 45 and 113.

57 The share of the spot market has declined marginally in recent years due to a pick up in the turnover in the derivatives market

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It is important to note that foreign institutional investors (FIIs) are able to do transactions on the currency derivatives market, but only “hedging” of the currency risk exposure on their Indian investment is permitted.

### **7.2.1 Foreign currency swaps**

— Foreign currency swap is an arrangement where the two counterparts agree to exchange streams of cash flow and payments over a period of time with a view to achieving overall cost reduction for both parties. As shown in Table 3, foreign currency swaps are the largest segment of the foreign currency derivatives and account for a third of the total turnover in the OTC segment. Resident Indians having a long-term forex or rupee exposure may enter into foreign currency-rupee swap under the condition that there is a limit of \$50 million on swap facilitating customers to assume a forex liability.

### **7.2.2 Foreign currency forward market: The Rupee-Dollar forward market (R-D FM)**

— This market is both onshore and offshore, though the offshore market is not as large as the onshore. In the onshore market, approximately 120,000 forward transactions came to CCIL for settlement in 2008-09, with notional values of a little over \$1 trillion. After reaching a peak of daily average volume of \$7.6 trillion in March 2008, the market has slowed down considerably and daily average volume has fallen to \$4.5 trillion in March 2009 and to less than \$3 trillion at the end of November 2009.<sup>58</sup> This partly reflected the strengthening of prudential regulations effected by the RBI on off-balance sheet exposure (three-fourth of which is accounted for by forward exchange contracts) of the SCBs.<sup>59</sup>

The R-D FM accounts for about 30 percent of the total forex market in 2008-09.<sup>60</sup> The market is dominated by foreign banks,<sup>61</sup> which have strong experience in forex business and use more advanced technology for the purpose. There are three remarkable features about the Indian currency forward market.

<sup>58</sup> CCIL Fact Book 2009, p.97-98

<sup>59</sup> The prudential regulations included, among others, a strengthening of the capital adequacy norms for off-balance sheet transactions. RBI (2009) p.121

<sup>60</sup> CCIL (2009)

<sup>61</sup> 62 percent of the forex market trades were attributed to foreign banks in the year 2008-09.



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- a. Even though trading is negotiated off-exchange, there is netting by novation at CCIL, so that credit risk is eliminated.
- b. Even though it is an OTC market, it trades standardised contracts that expire on the last business day of each month.
- c. Ordinarily, currency forward markets have pricing that is controlled by the covered interest parity (CIP). However, the system of capital controls involves considerable barriers on CIP arbitrage. Hence, the forward rate often strays away from the fair value.

The CCIL has started guaranteed settlement of foreign exchange forward trades (with a residual maturity of up to 13 months) from the December 1, 2009. The proposed settlement process has been approved by RBI. Once CCIL starts guaranteed settlement of forwards from the trade date, banks will not have any counterparty exposure for these trades and, as a result, will have significant benefits in terms of reduction of their inter-bank counterparty exposures. They will also have significant savings from capital requirements to support such trade.<sup>62</sup>

## The off-shore non-deliverable forwards (NDF) market

In addition to the onshore R-D FM, there is active trading in cash-settled rupee-dollar forwards on what are termed non-deliverable forwards (NDF). The NDF markets in the Indian rupee (INR NDFs) have grown in volume and depth over time. While these are largely concentrated in Singapore, they also exist in London and New York. NDF turnover is estimated at \$0.5 to \$0.75 billion a day, compared with \$1.5 billion a day for the onshore R-D FM. The typical quote depth on both markets is \$5 million. The spread on the onshore market is roughly 0.5 to 1.0 paise (a rupee has 100 paise), while the offshore NDF market has a spread between 0.5 and 2.0 paise.<sup>63</sup> These derivatives allow multinational corporations, portfolio investors, hedge funds and proprietary foreign exchange accounts of commercial and investment banks to hedge or to take speculative positions in local currencies.<sup>64</sup> The demand for NDFs arises principally out of regulatory and liquidity issues of the underlying currencies. The requirements that transactions in the onshore market must only be for the purpose of hedging has made the NDF market interesting to entities, which are prevented from making transactions in onshore market.<sup>65</sup>

<sup>62</sup> CCIL (2009), p.19

<sup>63</sup> Prices in the NDF market embody useful information content about market expectations of potential pressures on the exchange rate.

<sup>64</sup> Onshore financial institutions are not allowed to transact in the NDF markets.

<sup>65</sup> Shah, Thomas and Gorham (2009) p. 156

## **8. Open issues for market stability and development**

— As mentioned in Section 3, the enormous size and fast growth of the global OTC derivatives market has attracted the attention of regulators and supervisory bodies. Some OTC derivatives have been viewed as amplifiers of the stress in the present global financial crisis. The more common criticisms relate to the fact that the OTC markets are less transparent and highly leveraged, have weaker capital requirements and contain elements of hidden systemic risk. In section 5, we mentioned some of the recent policy initiatives that have been taken to improve market organisation and to strengthen the post-trading infrastructure of OTC derivatives.

In this section, we would like to focus our attention on the Indian OTC derivatives market and deliberate on measures that would help ensure more stability and yet contribute to the development of the market. Knowing the functional value of the OTC markets in the Indian financial system, we are not proposing any new initiatives at tightening of the regulatory rope. Instead, we propose increased disclosure, greater transparency and more standardisation as superior measures for improving surveillance.

### **8.1 Competition with the exchange-traded derivatives**

— A general view emerging after the recent financial crisis is that the OTC derivatives trading should be moved on to an exchange platform. The proponents of this view hope that this would increase liquidity and reduce significantly the opacity of the market. They argue that exchanges provide transparent and reliable price formation mechanisms, neutrality, robust and appropriate technology, better regulation and, above all, centralised clearing and settlement. These arguments are based on the assumption that the existing method of trading in OTC products is all based on telephone trading and there is no clearing system in place. If telephone trading were to be replaced with electronic trade processing and confirmation and if all contracts were to be settled through centralised clearing, the advantages of organised exchange-traded derivatives are equally available in the OTC market. The following three arguments clearly show that OTC and exchange-traded products cater to completely different needs of different market participants:

- (i) Exchanges are designed to be accessible to retail as well as wholesale customers. The level of regulation on exchanges is tight because it is essential for protecting the retail customer. The OTC derivatives markets are totally wholesale and are used by professional (financial institutions and institutional investors), who work with latest risk-management tools.
- (ii) Exchanges are complementary to the OTC markets. A recent survey of futures vs. forward trading in India revealed that a majority of the forward trades were concentrated



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in the tenor of 6 months to one year. As against this, trade in futures has largely been confined to near one-month contracts, accounting for about 90 percent of all futures since September 2008.<sup>66</sup> Additionally, even the purpose of participation in both the markets appears to be different. Thus, the Indian OTC forward market is primarily used by hedgers with physical exposure, whereas the futures market is apparently used mostly for arbitrage and speculation purposes.<sup>67</sup>

- (iii) Exchanges specialise in highly standardised products, many of which started life as an OTC product and, as they became more standardised and therefore highly liquid, were capable of being traded on an organised exchange. Many of the products currently traded OTC are highly customised or are semi-standardised. It is very unlikely that single-entity CDS could ever be traded on an organised exchange.

Therefore, the major issue is not competition between these two markets, where one form of organisation (the organised and regulated exchange) is trying to win over the other form of organisation (the opaque and unregulated OTC market). It is instead an issue of using one market (OTC market) as a fertile ground for financial product innovation and testing their potential till they are established and standardised enough to be traded on the organised exchange. The riskiness inherent in innovative products may make the OTC products a bit more expensive than exchange-traded products. As these products mature, they are also traded at spreads similar to exchange traded products. The two markets serve different purposes, very much like a standard and a customised furniture market.

## 8.2 New derivatives products for credit risk transfer (CRT)

— Credit risk transfer (CRT), in a broad sense (including guarantees, loan syndication, and securitisation), has a long history. However, there has been a sustained and rapid growth of new and innovative forms of CRT associated with credit derivatives.<sup>68</sup> The most common credit derivatives are credit default swaps (CDS) on single corporate entity (single-name CDS) and collateralised debt obligations (CDOs). Since 2005, CRT activity became significant for two additional underlying asset classes – asset-backed securities (ABS) and leveraged loans.<sup>69</sup>

<sup>66</sup> Lingareddy (2009), pp.5-6

<sup>67</sup> Op cit., p.9

<sup>68</sup> Credit derivatives are off-balance sheet financial instruments, traded mostly over the counter, that permit one party (beneficiary) to transfer credit risk of a reference asset, which it owns, to another party (guarantor) without actually selling the asset. It, therefore, unbundles credit risk from the credit instrument and trades it separately.

<sup>69</sup> BIS (2008), p.4



Internationally, banks and financial institutions are able to protect themselves from credit default risk through the mechanism of credit derivatives. However, credit derivatives were not allowed in India until recently. The RBI has made an announcement in its second-quarter monetary policy 2009-10 that it has considered it appropriate to proceed with caution on this issue. To start with, RBI proposes to introduce a basic, over-the-counter, single name CDS for corporate bonds for resident entities, subject to safeguards. It is envisaged that all CDS trades will come to a centralised reporting platform and, in due course, will be brought on a central clearing platform. Though no further details are available on the subject, it is assumed that commercial banks and primary dealers would be allowed to participate in the market as protection buyers and sellers. The protection buyer will be asked to prove credit exposure as underlying for using this market. Bankruptcy, obligation default, obligation acceleration and repudiation/moratorium will most likely be the credit events forcing the protection seller to shoulder the risk.<sup>70</sup>

This should be viewed as a good development because the CDS market provides the most objective tool for pricing of credit risk. The 2007 Percy Mistry committee<sup>71</sup> report on making Mumbai an international financial centre had observed that there is a large credit derivative market overseas on Indian debt. In the newly proposed liberal regime, the overseas credit derivatives markets could shift to India.

We believe that there is no intrinsic problem with CDS. The problems associated with CDS in the US and elsewhere in Europe were experienced because of flaws in market design. As mentioned in section 5, the introduction of CCPs for OTC credit derivatives has turned out to be the most common initiative for lowering the counterparty risks and improving transparency in the market. If CDS trade in India is initially routed through a reporting platform and, later, if a CCP is allowed to perform the post-trade activities for CDS, many of the risks associated with it could be managed efficiently. Insisting on compliance with the ISDA master agreement would help accelerate the standardisation of the market.

There is a new and significant use of the CDS, which was pioneered by the German development bank called KfW. Through its creation of a securitisation platform (called PROMISE), the KfW has allowed banks that originate loans to Small and Middle Enterprises (SMEs) to sell the credit risk on their loans (without selling the loans) as CDS. The KfW pools the CDS of various originating banks and packages the same into credit linked notes (CLN) and sells these to the capital market through its securitisation platform called

<sup>70</sup> Whether restructuring will be included in the list of credit event is not clear!

<sup>71</sup> Mistry (2007) p. 153

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PROMISE. This allows capital market investor to buy the credit risk of the SME loans, freeing the originating bank from the risks and making it easier for them to provide SMEs access to credit.<sup>72</sup>

### 8.3 Increased off-balance sheet exposure of Indian banks

— The growth of derivatives as off-balance sheet (OBS) items of Indian Banks has been an area of concern for the RBI. The OBS exposure has increased significantly in recent years. The notional principal amount of OBS exposure increased from Rs.8,42,000 crore at the end of March 2002 (approximately \$181 billion at the exchange rate of Rs.46.6 to a US \$) to Rs. 1,49,69,000 crore (approximately \$321 billion) at the end of March 2008. (See Table 4)

**Table 4**  
**Off-Balance sheet exposure of scheduled Commercial Banks in India\***  
(Amount in Crores Rs)

Item	2007-08	% of Total	2008-09	% of Total	% Change (Y-O-Y)
Forward exchange					
Contracts	1,08,76,228 [251.4]	75.0 percent	79,15,211 [151.0]	74.2 percent	-27 percent
Guarantees given	2,95,506 [6.8]	2.0 percent	4,17,064 [8.0]	3.9 percent	41 percent
Acceptances, endorsements, etc.	33,26,853 [76.9]	22.9 percent	23,39,686 [76.9]	21.9 percent	-30 percent
Total of all contingent liabilities	1,44,98,587 [335.1]	100 percent	1,06,71,961 [203.6]	100 percent	-26 percent
* Scheduled Commercial Banks (SCB) include State Bank Group, Nationalised Banks, Other Public Sector Banks, Private Sector Banks and Foreign Banks					

Source: RBI: Report on Trend and Progress of Banking in India, 2008-09, p. 300

72 For more details, refer to the website of the KfW Bank at: [www.kfw.de/EN/Home/Loan\\_Securitisation/KfWs\\_Securitisation\\_Platform](http://www.kfw.de/EN/Home/Loan_Securitisation/KfWs_Securitisation_Platform)

The spurt in OBS exposure is mainly because of derivatives, whose share accounts for three-fourth of the total. The derivatives portfolio has also undergone a change, with single currency IRS comprising 57 percent of total portfolio as of end-March 2008 from less than 15 percent as of end-March 2002.<sup>73</sup> It is interesting to note that foreign banks have the largest share (70 percent as of end-March 2008) of OBS exposure of all SCBs. The forward contracts, where foreign banks and new private banks were a counterparty, was 90 percent of all forward exchange contracts at the end of March 2008, reflecting the concentration in the OTC derivative market. Forward contracts declined by 27 percent as of end-March 2009, reflecting a strengthening of the prudential regulations effected by RBI.

We conducted a detailed survey of the off-balance sheet activities of major SCBs in India to measure the participation of these banks during 2008 and 2009 in both the currency and interest rate derivatives markets for hedging and trading purposes.<sup>74</sup> We also tried to figure out the aggregated marked-to-Market (MTM) position of these banks and their credit exposure in both markets at the end of March 2008 and 2009. Though the results of our survey do not give the total picture, it may be interpreted as representative of the behaviour of the major commercial banks in India. A summary of the data is given in Table 5.

<sup>73</sup> RBI, (2009), p.244

<sup>74</sup> The off-balance sheet records of following 15 banks (given in alphabetical order) were included in the survey: Axis Bank, Bank of India, BNP Paribas, DBS, Deutsche Bank, Federal Bank, HDFC Bank, HSBC, ICICI Bank, IDBI, Indusind Bank, Karnataka Bank, Kotak Mahindra Bank, State Bank of India, Yes Bank. The inclusion of these banks in the survey depended upon the availability of their off-balance sheet details on the web.



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**Table 5**  
**Participation of SCBs in the Indian derivatives market**  
 (US \$ million)

	2009	Percent	2008	Percent
(Notional principal amount)				
<b>For Hedging</b>				
Currency derivatives	3593.63	18.0	3299.48	20.9
Interest rate derivatives	16342.44	82	12523.40	79
<b>Total of Hedging (A)</b>	19936.07	100	15822.88	100
<b>Hedging as a percent of (A + B)</b>		3		2
<b>For Trading</b>				
Currency derivatives	225170.03	32.9	113487.92	16.2
Interest rate derivatives	458400.26	67	586120.30	84
<b>Total of Trading (B)</b>	683570.29	100	699608.22	100
<b>Trading as a percent of (A + B)</b>		97		98
<b>Total of Hedging and trading (A+B)</b>	703506.36		715431.10	
<b>Marked to market positions</b>				
<b>Assets (+)</b>				
Currency derivatives	7518.53		1618.37	
Interest rate derivatives	2465.09		113.75	
<b>Liability (-)</b>				
Currency derivatives	2646.60		8.47	
Interest rate derivatives	2571.72		214.64	
<b>Credit exposure</b>				
Currency derivatives	21208.46	61	9340.82	59
Interest rate derivatives	13400.02	39	6393.99	41
<b>Total of Credit Exposure</b>	34608.48		15734.81	

Source: Annual Reports of 15 Scheduled Commercial Banks

The following conclusions were drawn about the off-balance sheet exposure of the SCBs:

- (i) Over 97 percent of the notional amounts assigned to derivatives in the OBS was for trading and not for hedging. Two-thirds of the notional amount in the category of trading activities in 2009 (and over three-fourth in 2008) was for trading in interest rate derivatives. The rest was accounted for by currency derivatives.
- (ii) In the category of hedging activities, banks again had a larger participation in the interest rate derivatives; about 80 percent of the total hedging activities in the derivative markets were again in the interest rate derivatives market. This conforms to bankers' need for asset and liability management (ALM).
- (iii) Gross market values of the derivatives, showing the total replacement cost (obtained by "marking to market") of all contracts, had a larger positive value in currency derivatives than in interest rate derivatives.
- (iv) Currency derivatives seem to have contributed more to the credit exposure of banks, making these derivatives riskier from a credit risk perspective.<sup>75</sup>
- (v) The survey does not reveal what part of the total derivatives business is OTC and which kind of derivatives business is more profitable. It is only State Bank of India, which mentions that all of its derivatives business is OTC in nature.<sup>76</sup>

The growth of derivatives in the OBS business of SCBs is likely to be managed by an accompanying regulatory and supervisory framework, both at the national and international levels. In December 2009, the Basel Committee on Banking Supervision (BCBS) issued consultative proposals for strengthening the resilience of the banking sector. One of the consultative proposals is that the risk coverage of the capital framework will be strengthened.

<sup>75</sup> In order to calculate the credit exposure equivalent of off-balance sheet interest rate and exchange rate instruments under current exposure method, a FI would sum:

- (i) the total replacement cost (obtained by "marking to market") of all its contracts with positive value (i.e., when the FI has to receive money from the counterparty), and
- (ii) an amount for potential future changes in credit exposure calculated on the basis of the total notional principal amount of the contract multiplied by the following credit conversion factors according to the residual maturity of the contract :

Residual Maturity	Conversion Factor to be applied on National Principal Amount	
	Interest Rate Contract	Exchange Rate Contract
Less than one year	Nil	1.0 percent
One year and over	0.5 percent	5.0 percent

<sup>76</sup> State Bank of India(2008-09), p. 136

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In addition to the trading book and securitisation reforms announced in July 2009, the Committee is proposing to strengthen the capital requirements for counterparty credit risk exposures arising from derivatives, repos, and securities financing activities. These enhancements will strengthen the resilience of individual banking institutions and reduce the risk of shocks being transmitted from one institution to the next through the derivatives and financing channel. The strengthened counterparty capital requirements may also increase incentives to move OTC derivatives exposure to central counterparties and exchanges.

However, some studies suggest that changes in capital regulation had no consistent impact on the adoption of off-balance sheet products.<sup>77</sup> The attractiveness of the OTC business is guided more by a “high-return” motive and is not deterred by the low capital charge on it. Evidently, the routing of the trade and settlement process of the OTC derivatives component of OBS business through a centralised clearing may be more effective. This would impart more transparency to the market as well.

### 8.4 Strengthening the centralised clearing parties

— As mentioned in section 6.2, CCIL, which started functioning in 2002, is the **only** centralised clearing party for trade processing and settlement services in India. It currently provides guaranteed settlement facility for government securities trading, clearing of collateralised borrowing and lending obligations (CBLO), guaranteed settlement of foreign exchange trading, and settlement of all IRS. Though the concentration of business relating to money, securities and forex markets with the CCIL helps in pooling risks and reducing the overall transactions costs for the system, the CFSA report opined that the concentration of such a wide spectrum of activities leads to concentration of risks on one entity.<sup>78</sup> The report feared that the inadequacy of their risk management can have system-wide implications, which could be more destabilising than the decentralised systems. Concentration can also lead to a “moral hazard” problem if the central counterparty is considered “too big to fail”.

We believe that, given the systemic significance of CCPs and the existing concentration of activities in CCIL, the time has come when competition should be allowed in post-trade clearing and settlement of OTC derivatives. Very much like in the market for foreign currency futures, where National Stock Exchange (NSE) and MCX compete as organised

<sup>77</sup> Ghosh (2003), p. 4

<sup>78</sup> CFSA (2009), p.272



exchange-based CCPs, one should start thinking about new infrastructure in OTC derivatives. The entry of one or two more CCPs in the business of post-trade clearing and settlement may bring with it the advantages of operational efficiency and, at the same time, reduce the concentration of risk.

Another major factor contributing to the strengthening of CCPs relates to increasing liquidity requirements of CCIL. As part of its operations, CCIL sometimes experiences intra-day liquidity shortfalls. To tide over the intra-day liquidity requirements, CCIL has availed of a dedicated line of credit from a few commercial banks. We are endorsing the demand of the CFSA for the grant of a limited purpose banking license, which will enable CCIL to avail of a repo window with another bank or from the RBI to fulfil the need for additional liquidity. In a recent research paper,<sup>79</sup> Professor Ashima Goyal notes that clearing houses require cash reserves. She believes that the OTC users normally pledge assets, and not cash, in swap deals, and are resisting additional cost. She suggests that alternative credit arrangements could be developed with members of clearing houses.

## **9. Summary and conclusions**

— The present work is a country study of the regulatory framework of the Indian OTC derivatives markets. The research work analyses the present market structure and reflects upon the regulatory initiatives taken by the Reserve Bank of India towards a better surveillance of the OTC markets. In addition to that, the research work focuses on four open issues impacting on the stability and development of the market.

The major findings of the study are the following:

- (i) The notional value of OTC contracts is not a true measure of risk. It is the gross market value, measuring the cost of replacing all existing contracts, which shows market risk. However, for analysing the payment flows at risk, a still better measure is the gross credit exposure, which shows the aggregated market value after bilateral netting has been completed.
- (ii) In the Indian context, the OTC derivatives markets are well regulated by the central bank. The RBI has legalised OTC derivatives trading, where at least one of the parties in transaction is a regulated entity. RBI allows financial institutions to use derivatives

<sup>79</sup> Goyal (2009), p.13.

## Strengthening Regulatory Surveillance

for their own balance sheet management and non-financial firms to use derivatives for hedging their exposures. A centralised counter party, called CCIL, is entrusted with the job of engaging in the OTC derivatives market as a reporting platform and a clearing agency for post-trading settlements. In the Indian context, the CCP approach offers a unique model for automatic surveillance of the OTC exposure. Recently, the guarantee offered by CCIL on some OTC products has gone a long way in reducing the capital requirements for the banks.

- (iii) A review of the market structure reveals that interest rate swaps (in the category of interest rate derivatives) and foreign currency forwards (in the category of foreign currency derivatives) occupy dominant positions in the Indian OTC derivatives markets. The market for IRS is primarily an overnight market and products of tenure longer than overnight have not become popular because of the absence of a vibrant inter-bank term money market. The dominance of foreign banks in this market is an important characteristic of this market. The market for foreign currency forwards is basically a rupee-dollar forward market, where CCIL provides guaranteed settlement of the forward trades. There is also an off-shore NDF market in rupee-dollar forwards.
- (iv) For better surveillance of the OTC markets, we propose strengthening of the CCP approach. However, at present, India has only one institution for the purpose. This has created concerns relating to concentration risk. The entry of one or two new CCPs for post-trade clearing and settlement should ensure competition and bring in the advantages of operational efficiency.
- (v) For further development of the OTC markets in India, introducing new derivative products for credit risk transfer will be a positive step. In concrete terms, this would mean introducing credit default swaps. The problems associated with these instruments could be reduced by routing them through a reporting platform and using a CCP for trade clearance and settlement.

In conclusion, the Indian OTC derivatives market did not contribute, directly or indirectly, to the global financial crisis. The policy implication of our research is that, unlike the new regulatory initiatives in the United States and European Union towards more regulation of the OTC derivatives markets, Indian OTC markets are well regulated. Knowing the functional value of OTC derivatives markets in the Indian financial system, there is no need for new moves at tightening the regulatory rope. Instead, what we need is a concerted effort towards increased disclosure, more transparency and more standardisation.

More research is needed to analyse the contribution of the OTC derivatives markets in improving financial market efficiency. It is still not very clear how far the Indian OTC deriva-



tives markets have helped in price discovery in the spot markets. The anecdotal evidence seems to suggest that the impact of OTC market prices on spot market price-finding has been weak. Additional research is also needed on the ease of arbitrage between exchange-traded and OTC-traded derivative products for cost effectiveness by financial and non-financial institutions.

The evidence on the corporate use of the OTC derivatives market for hedging real and/or potential exposure is also limited. Given the increased use of international financial markets by the Indian corporate sector for trade financing, external commercial borrowing and foreign direct investment, we should encourage the use of OTC derivatives markets for hedging the potential exposure of the corporate sector. This will be an important step in the right direction.

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## Appendix I

### Difference between exchange-traded futures and OTC-traded forwards

Forwards	Futures
Traded in the OTC (over the counter) or Interbank market, with buyer/ seller bearing mutual counterparty risk.	Traded on Exchanges, with the Exchange bearing counterparty risk with respect to the buyer/ seller.
Can have any maturity date, customised to the requirement of the buyer.	Has fixed maturity dates. In the case of Dollar-Rupee Futures, the maturity dates will be the last working day of a calendar month, going out to 12 months.
Can be for any amount, customised to the requirement of the buyer.	Lot Size is fixed. Transactions can be in multiples of the fixed Lot Size, not in broken/ odd amounts.
The Forward Rate = Spot Rate + Forward Difference, where Forward Difference $\neq$ 0.	The Futures Rate = Spot Rate + Forward Difference, where Forward Difference $\neq$ 0
In case of USD-INR, the Forward Rate is quoted as X INR per 1 USD. For example, the current Forward Rate for 31-Aug-08 is 42.3350 INR per USD 1.	Some clarity is needed on this, but our understanding, so far, is that for Dollar-Rupee futures, the Futures Rate will also be quoted in the same manner as the Forward Rate.
No margin requirement	Margin required
Avowedly non-speculative for corporates in the Indian context, because trades (hedges) can be done only against and to the extent of actual exposures.	Fully speculative, because the contracts will be cash-settled on expiry. No delivery of Dollars can either be taken or given.
Account for, by far, the lion's share of the market volume. Estimates range from 80-95 percent.	Accounts for a small part of the total market volume, with estimates ranging from 5-20 percent.
Client (corporate) trades/ hedges with a bank.	Client will trade/hedge with a broker who is a member of the exchange.

Source: Kshitij Consultancy Services (2008)



# Monetary Policy Challenges





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## Weathering the Global Financial Crisis: Causes, Responses and Lessons Learned

### 1. Introduction

— The current financial crisis has posed new challenges to all parties involved: monetary and fiscal authorities, regulators and supervisors, and the financial industry. This note addresses some specific challenges from a monetary policy perspective.

A first question relates to the causes of the current crisis. This includes a particular examination of the role of monetary policy and global liquidity. Next, the monetary and fiscal policy reactions in the euro area are described, and their inflationary potential is assessed. Finally, the note elaborates on lessons that can be learned from the crisis and reflects on how and to which extent central banks need to place greater emphasis on: financial stability considerations.

### 2. The origins of the financial crisis

— To better understand the dynamics of the crisis and its manifold ramifications it is useful to recall the situation that prevailed in the immediate run-up to the start of the financial turmoil in August 2007. It shows that the main causes of the current financial crisis can be traced back to the emergence of insufficiently regulated and supervised financial innovations at a time when the world economy had been enjoying a period of robust economic growth and low inflation in a context of ample liquidity and low default risks. This constellation has led to a situation where financial market participants in the search for ever higher yields have systematically underestimated the risk components of their engagement, while the earnings prospects have systematically overestimated.

This section briefly recalls the factors behind the crisis, with a particular focus on the role monetary policy and global liquidity conditions may have played in this context. Overall, it can probably be argued that, by keeping policy interest rates at very low levels for a

protracted period of time in a context of continued favourable macroeconomic and liquidity conditions, central banks around the world had, to a different degree, contributed to fueling asset price bubbles in the run-up to the financial tensions.

## Business models and regulation

— At the level of the financial system, the crisis was triggered by regulatory arbitrage, deterioration in credit standards and increased reliance of banks to fund their assets in short-term markets.

More specifically, the business models in the banking system underwent a major transformation. It moved from the traditional business model, in which the issuing banks hold loans until the repayment, to the meanwhile well-known business model of *originate and distribute*, in which loans are pooled, tranced and then resold via securitisation to investor groups with different risk appetites.<sup>1</sup> This increasingly allowed credit institutions to sell off the credits they originated to the capital market world wide rather than holding them. Financial innovation led to an extraordinary expansion of credit risk transfer instruments which permitted the transfer, hedging and active trading of credit risk as a separate asset class. The emergence of the subprime mortgage market is a case in point. The financial instruments became increasingly complex and the speed of innovation amplified. Examples included credit default swaps (CDSs) and collateralised debt obligations (CDOs).

This trend of creating and assuming financial risk became the core activity of the financial industry. At this level, two factors were at work. First, the incentives of loan managers and traders to conduct prudent screening of loans weakened since their compensation schemes were ill-designed and thereby reinforced the shortening of their time horizons. Second, financial instruments became increasingly complex and opaque. This complicated the assessment of the quality of the underlying investments from the securities holders' perspective.

Regulators and supervisors have failed to adequately respond to these new developments by modernising rules in a timely manner and then applying them accordingly to the financial industry.

<sup>1</sup> *Tranching* means here the issuance of different kinds of debt securities with different priority rankings and equity as the first loss absorber.

## Monetary Policy Challenges

### Macroeconomic policies

— The aforementioned emergence of financial innovations was accompanied by the fact that financial market participants for a protracted period of time faced a favourable macroeconomic environment with high global output growth, low inflation and very low interest rates. World growth had increased to unprecedented levels and international economic and financial integration had deepened considerably. At the same time, domestic and global imbalances emerged. For instance, emerging economies, in particular in Asia, given the experience of past currency crises and the desire to hedge against the volatility in international financial markets, had been engaged in building up foreign exchange reserves. This accumulation of reserves led to large and persistent current account imbalances in those countries, with the result that consumption was below actual production. Other economic regions, however, built up current account deficits, thereby consuming more than what had actually been produced. Consumption in these regions was mainly financed through increased household indebtedness. As a result, since these developments had continued for many years, the imbalances became increasingly unsustainable with debt-financed overconsumption in one region and high savings in other regions. This was exacerbated during the years immediately preceding the crisis when there was a sharp rise in the prices of oil and other commodities.

Overall, the emergence of new financial products and the favourable macroeconomic conditions before 2007 were two mutually reinforcing factors. Financial market participants expected that the overall benign macroeconomic environment would continue for a long period of time. This view led to a situation where risks were systematically underestimated and earnings prospects systematically overestimated. This reinforced the search for yield which in turn accelerated financial innovation.

But what role did monetary policy play in this context? Focusing on the role of monetary policy there is a large volume of literature on its role in explaining booms and busts.<sup>2</sup> As regards the current financial crisis, the literature offers two competing views as regards the explanation of low interest rates.

Taylor (2009) for instance blames the Federal Reserve Bank's policy of low interest rates to have accelerated the housing boom and ultimately led to the housing bust. This assessment follows from actual interest rates being well below the benchmark level derived from Taylor rules. In addition, he estimates the empirical relationship between the interest rate and housing starts, and simulates a model to analyse what would have happened if mon-

<sup>2</sup> See for instance Mitchell (1913), Fisher (1933), Minsky (1957) and Kindleberger (1978).

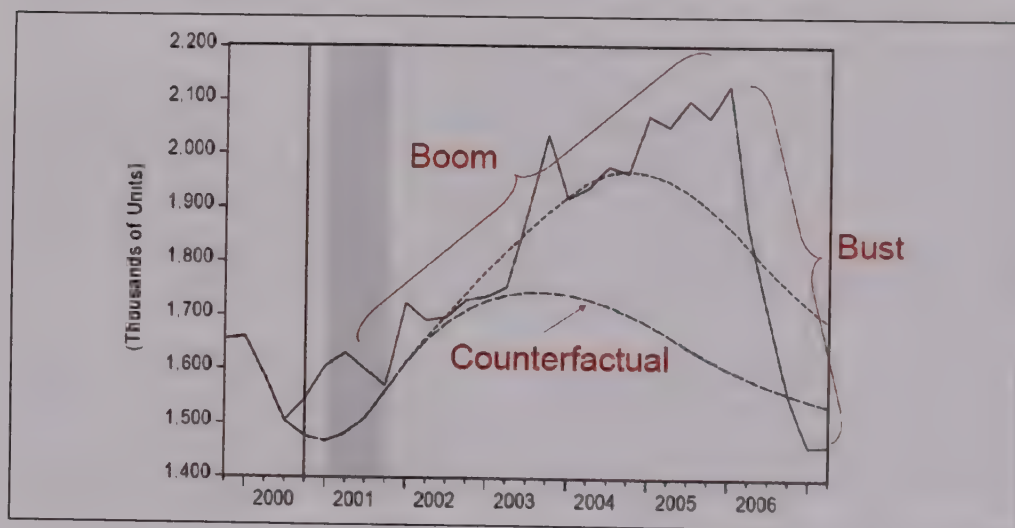


etary policy had followed the Taylor rule. Figure 1 compares the actual housing starts with model based-simulations of the housing starts. The jagged line (labelled dynamic simulation) reflects the simulations based on actual US interest rates whereas the shorter dashed line (labelled counterfactual simulation) shows the simulated housing start with interest rates as the Taylor rule would have suggested, see also Taylor (2009).

**Figure 1**

**The boom–bust in housing starts compared with the counterfactual**

*(The line with shorter dashes shows model simulations with actual interest rates)*



Source: Taylor (2009) "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong", Written version of keynote at Bank of Canada, November 2008.

In contrast, there is a literature that links the low interest rates in the period of 2002–2004 to global factors – in particular global savings – that are beyond the control of monetary authorities (*savings glut* hypothesis, see Bernanke 2005). It argues that due to an excess in world saving, interest rates in the United States and other countries were pushed downward. The potential role of monetary policy with respect to global imbalances, however, is far from obvious.

## Global liquidity

— Ample global monetary liquidity, particularly since 2000, may have induced asset prices to overshoot, leading to a potentially costly boom–bust cycles, a misallocation of resources

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and first upside and then downside pressures on price developments. The impact of global monetary liquidity on international risk premia as well as on commodity prices also has strong implications for domestic economic analysis, in particular through their direct effects on expected inflation.

**Figure 2**  
**The external dimension of monetary analysis**

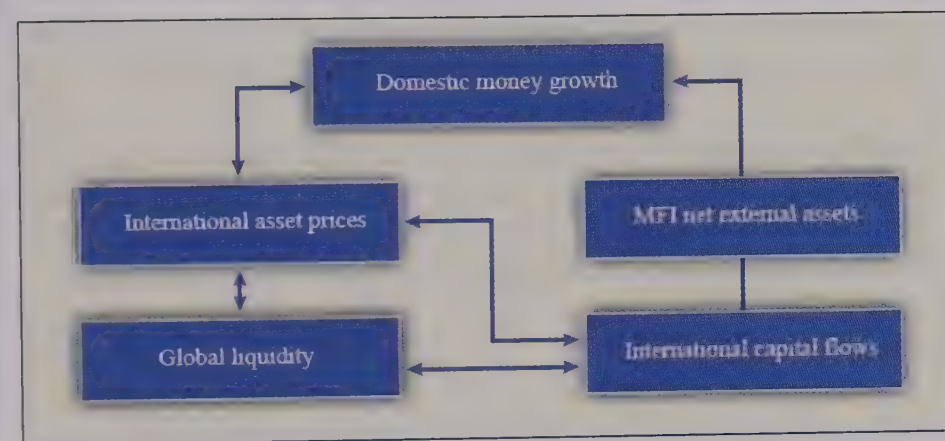


Figure 2 illustrates different mechanisms through which global financial conditions ultimately have an impact on domestic money and credit growth. While the first set of effects works through international financial prices a second, more mechanical effect can be discerned through the transactions undertaken by the euro area households and firms. More precisely, external transactions (be they direct investment or portfolio flows into equities and/or debt securities) by euro area resident non-MFIs and non-euro area residents have a direct impact on the external assets and liabilities of the MFI sector, to the extent that they are settled via resident banks.

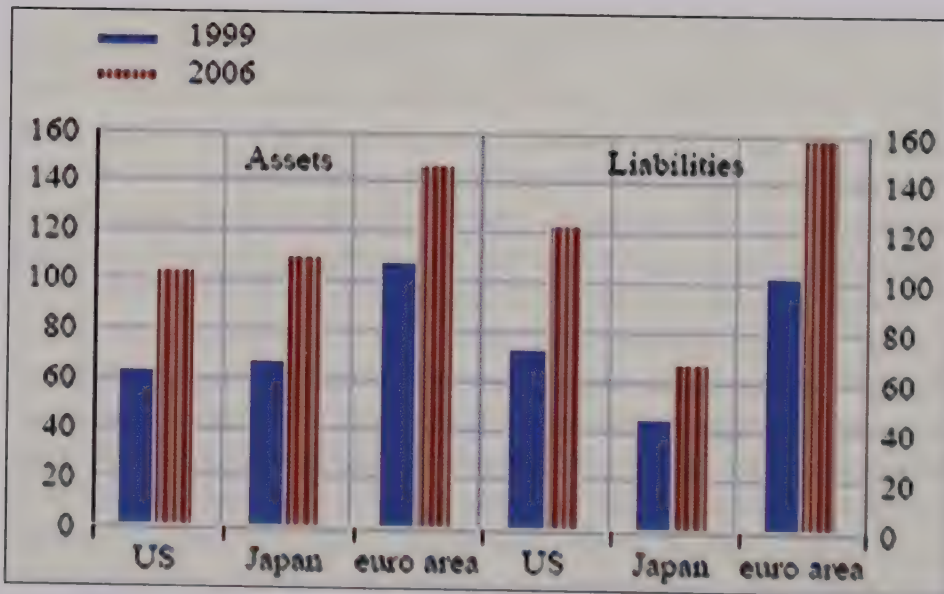
Financial globalisation has created opportunities to enhance risk-sharing across countries which per se is welfare-enhancing and thus economically desirable. At the same time, it has also increased the exposure of national economies to developments in the rest of the world via wealth effects and international capital flows. As global financial integration deepens, portfolio allocation decisions are increasingly determined by developments in expected relative yields worldwide. Favourable expectations on returns for a specific economic area will shift cross-border capital flows towards that region.

The long period of low interest rates created the breeding ground for the accelerated emergence of financial innovations, e.g. the development of credit risk transfer markets and securi-

tisation. The modern financial architecture has increasingly evolved towards an international network of financial institutions, creating an additional channel of transmission across borders. For example, Swiss banks' foreign claims jumped from roughly five times Swiss nominal GDP in 2000 to more than seven times in mid-2007.<sup>3</sup> Banks' (particularly European banks') foreign positions have surged since 2000, even when scaled by measures of underlying economic activity. In recent years, short-term interest rates (world wide) have also been unusually low by historical standards, serving to fuel the growth of global monetary liquidity (i.e. the sum of money for transaction purposes and short-term instruments at the global level). As banks' balance sheets grew, so did their appetite for foreign currency assets, notably US dollar-denominated claims on non-bank entities. During the build-up, the low perceived risk (high ratings) of these instruments appeared to offer attractive return opportunities.

With the benefit of hindsight, the years preceding the onset of the financial turmoil should be seen as characterised by ample global *monetary* liquidity, a concept situation associated with excessively often used to explain the low yields and credit spreads and the coincident rally in a large set of asset prices, such as equity, bond and commodity prices.

**Figure 3**  
**International investment positions: assets and liabilities in the G3 countries**  
*(as a ratio of nominal GDP)*



Source: European Central Bank (ECB)

<sup>3</sup> Mc Guire, P. and von Peter, G. (2009)



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From a central banking perspective, the key issue is to understand how global liquidity can ultimately influence domestic price stability. Specifically, it is important to understand the channels through which global liquidity can affect price developments in one country, such as by having an impact on international commodity prices, by influencing risk and term premia in international asset markets and by affecting domestic monetary developments.<sup>4</sup>

The relevance of the external dimension for monetary conditions is evidenced by the significant *growth of international capital positions* (see Figure 3). The most frequently used measure of financial globalisation is the sum of stocks of foreign assets and foreign liabilities of total economy as a percentage of gross domestic product (GDP). In the euro area, this sum has increased from 190 percent of GDP in 1999 to more than 300 percent in 2006. Over the same horizon, the net foreign liability position of the euro area increased from 6.5 percent to 10 percent of GDP. The significant increase in outstanding amounts becomes particularly relevant, if and when these claims are reallocated between jurisdictions, as they generate significant capital flows.

In the long run, under a flexible exchange rate regime, the effects of global factors on domestic inflation can be overcome by active domestic monetary policy. As pointed out by Woodford (2007), global developments could affect domestic inflation in the shorter term, but should not *“impair in any substantial way the ability of central banks to control domestic inflation through national monetary policy [...] It remains appropriate for central banks to be assigned responsibility for stabilising a suitably chosen index of domestic prices, despite continuing changes in the real economy, whether domestic or foreign in origin”*.

In the shorter term, global financial conditions can affect asset prices and, therefore, indirectly, domestic conditions via wealth effects and international capital flows. Moreover, global liquidity may affect international commodity prices and the prices of these commodities – used as intermediate inputs in production processes – can affect domestic prices of some goods, thereby influencing the terms of trade.

Figure 4 shows the cumulative net transfer of funds between various countries via the international banking system prior to the start of the financial turmoil. It maps nicely how banks facilitated international capital flows out of surplus regions, mostly from Japan, the euro area, Asian financial centres and oil-exporting countries. Funds were significantly transferred to borrowers in the United States. Since the onset of the turmoil the picture has changed dramatically. As regards the international capital flows, Figure 4 shows that the cumulative net flows among several large economies moves in the opposite direction as observed for the pre-turmoil period. The largest swing since the outbreak of the turmoil

<sup>4</sup> See ECB Financial Stability Report (June, 2007), the ECB Monthly Bulletin (July 2007 and August 2008).

has been observed for bilateral linkage between the United States and the United Kingdom due to reduced lending and write downs of positions vis-à-vis US residents by London offices of major European-headquartered banks, see Gyntelberg, McGuire and von Peter (2009).

**Figure 4**  
**Net flows of funds through the international banking system**  
*(six quarters before the outbreak of the turmoil) (six quarters after the outbreak of the turmoil)*



Note: The thickness of an arrow is proportional to the amount of net bank flows between countries/groups, and is comparable across panels. An arrow points from A to B if net flows in this direction are positive, calculated as changes in net interbank claims (assets minus liabilities) of banks in A on banks in B, plus net claims of banks in A on non-banks in B, minus net claims of banks in B on non-banks in A. (This last component is missed if B is not a reporting country.) See "Tracking international bank flows", BIS Quarterly Review, December 2006.

Source: Gyntelberg, J., McGuire, P. and von Peter, G. (2009) "Highlights of international banking and financial market activity", BIS Quarterly Review, June 2009.

The latest developments in monetary growth in the major economies partly point to somewhat diverging directions (see Figure 5). For instance, in the euro area M3<sup>5</sup> growth continued to

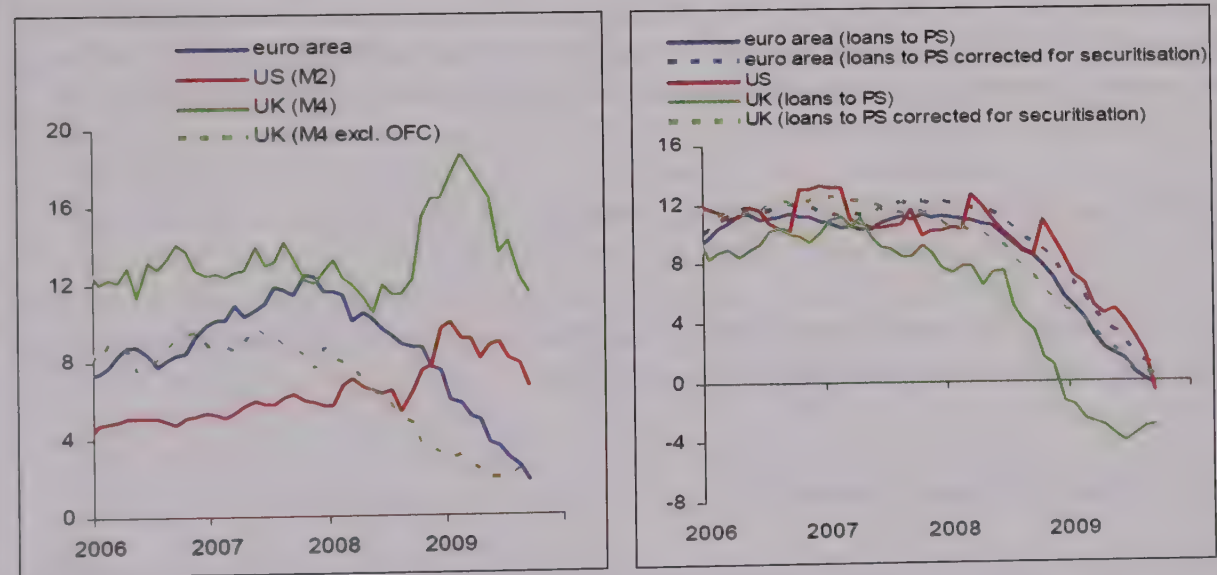
<sup>5</sup> Broad money (M3) comprises currency, i.e. banknotes and coins, balances which can immediately be converted into currency or used for cashless payments, i.e. overnight deposits, deposits with a maturity of up to two years, deposits redeemable at a period of notice of up to three months and marketable instruments issued by the MFI sector. Certain money market instruments, in particular money market fund (MMF) shares/units and repurchase agreements are included in this aggregate as well.

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decline since the end of 2007. The same applies to the UK when looking at the annual growth of M4<sup>6</sup> excluding other financial institutions (OFIs) money holdings (a measure including these holdings shows a temporary strong increase in the growth rate in 2008).

By contrast, in the US the M2<sup>7</sup> growth experienced a strong increase since the intensification of the financial turmoil, before stabilising in recent months at a high level. A measure of monetary growth in the G5 economies (US, JP, EA, UK, CA) suggests that broad money growth has slowed down in the past months and came back to a level similar to the one observed prior to the onset of the financial turmoil. However, this moderation was relatively modest compared with the much stronger slowdown in economic activity.

**Figure 5**  
**Broad money and credit growth**  
(annual growth rates)



Source: ECB.

Note: US loans series were constructed as the sum of consumer loans, real estate loans and commercial and industrial loans at Commercial Banks. PS denotes the private sector, i.e. households and non-financial corporations.

Source: ECB.

6 M4 covers private sector holdings of sterling notes and coin, sterling deposits with banks and building societies, and sterling shares issued by building societies. (Deposits are understood to include both certificates of deposit and other debt securities of up to and including five years' original maturity issued by banks and building societies.)

7 M2 includes currency and demand deposits plus time deposits, savings deposits, and non-institutional money market funds.



Finally, it may be useful to elaborate on the role that exchange rates play for the European Central Bank (ECB). Exchange rates movements, as a rule, should reflect changes in expectations for the path of underlying fundamentals such as inflation and interest rate differentials or changes in fundamental economic variables, such as productivity. This is best achieved through exchange rates that are determined by market forces, i.e. floating exchange rates. This seems especially important in the context of the build-up of global imbalances, which arguably have contributed to financial instability and which could reflect, to some extent, exchange rate misalignments. Floating exchange rate regimes can be seen as a safeguard against the proliferation of excessive global imbalances.

The ECB monitors developments of exchange rates in the context of its economic analysis for assessing risks to price stability. This is warranted against the background of the continuing process of globalisation, which has deepened the economic integration of economies in the world. Therefore, exchange rate developments have an impact on prices of intermediate goods and raw materials, as well as on an increasing share of final consumption goods. For this reason, exchange rate developments form, to a very well defined and limited extent, an input into the overall economic analysis underlying the monetary policy deliberations for the euro area. Exchange rates are not, however, used as a self-sustained indicator by the ECB for its policy decision.

### **3. Crisis management policies and inflationary risks**

— Balance sheets of central banks and governments have grown substantially as a result of measures taken to combat the financial crisis. This section describes the main measures taken, and analysis their potential inflationary impact.

#### **Central bank crisis management**

— The ECB's monetary policy has reacted forcefully and swiftly to the crisis. During the initial phase of financial tensions, i.e. until September 2008, the balance sheet of the ECB did not change much. In fact, overall liquidity provision was kept more or less unchanged. There is one notable exception to this statement, namely the provision of unlimited liquidity for two weeks over the turn of year 2007/2008, which resulted in a temporary expansion of the ECB's balance sheet.

After September 2008, the ECB's balance sheet grew considerably in size, due to a number of extraordinary measures taken by the ECB to maintain the functioning of the euro area money market and support the maintenance and extension of credit provision to the euro area economy. More specifically, the following measures have been taken.

## Monetary Policy Challenges

1. The ECB provides at a fixed rate unlimited liquidity to euro area banks in all its refinancing operations, against adequate collateral. The first and primary aim was to support the short-term funding of banks in order to alleviate the potential negative impact of liquidity risk on the availability of credit to households and companies across the euro area economy. The new procedure was designed to ensure the effectiveness of monetary policy transmission at a time when borrowing costs through interbank transactions had become extremely elevated for many banks.
2. The ECB has also extended the list of assets accepted as collateral. Government securities now account for less than half of the nominal value of the securities on the list, the rest being private securities. As a consequence, the total value of these eligible securities is around 130 percent of the GDP of the euro area. This very broad range of eligible collateral has enhanced banks' access to liquidity during the crisis.
3. An additional measure has been to lengthen the maturities of our refinancing operations. The maximum maturity was three months before the start of the crisis, but now runs up to one year. The first 1-year operation, conducted in late June 2009, led to a record amount (€442.5 billion) of liquidity being supplied to the euro area's banking system. Demand for the second 1 year operation, end September, was much lower though still sizeable (€75.2 billion) while a third operation is planned in December. Longer-term funding extends banks' liquidity into the traditionally less liquid segment of the money market, thus prolonging the roll-over date and reducing the refinancing requirements of banks in the short term.
4. The ECB also started providing liquidity in foreign currencies, notably US dollars. In addition, the ECB agreed with the central banks of several European countries outside the euro area to improve the provision of euro liquidity to their banking sectors.<sup>8</sup> This measure has been particularly valuable in order to support bank funding faced with a massive shortfall in US dollar funding in the aftermath of the collapse of Lehman Brothers.
5. The fifth measure concerns outright purchases of covered bonds, being debt securities issued by banks which give them access to longer-term and asset-backed funding. The ECB purchases this particular asset category as these bonds having been a major funding source for banks in the euro area before this market nearly collapsed with the financial crisis.

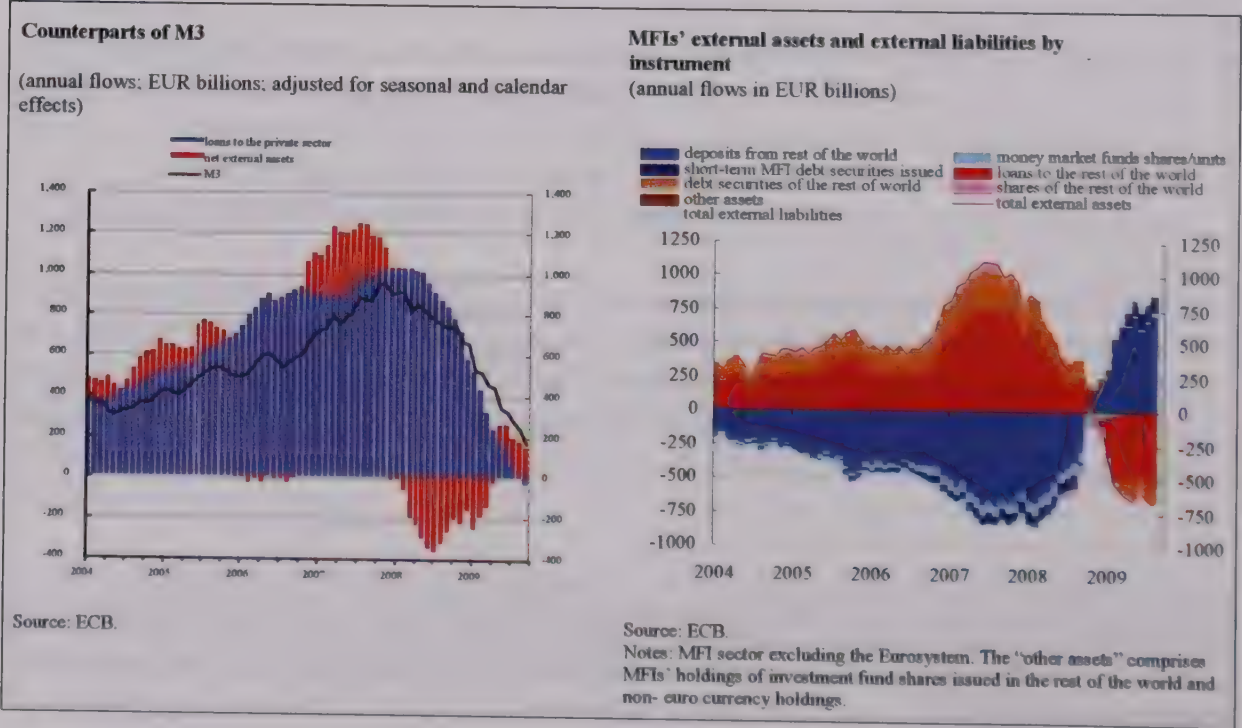
<sup>8</sup> A lower-bound estimate of banks' US dollar funding gap – the amount of short-term US dollar funding banks require – measured here as the net amount of US dollars channelled to non-banks. By this estimate, European banks' need for short-term US dollar funding was substantial at the onset of the crisis, at least \$1.0–1.2 trillion by mid- 2007. See McGuire/ von Peter (2009).



The measures taken have succeeded in averting a meltdown in financial markets in the euro area. Naturally, measures taken by governments to aid the banking sector, such as guarantees, have also played a pivotal role in this respect. In addition, the non-standard measures taken by the ECB have kick-started a cautious return to more normalised conditions in financial markets, as for instance witnessed by the development of money market spreads. Furthermore, they have bought time for banks to start the necessary deleveraging process and the building up of sufficiently high capital buffers. These processes should put banks in a favourable position to restart loan growth as soon as the economic circumstances not only stabilise but also show signs of a firm recovery. As regards the covered bonds, increases in the number of new issuances of such bonds in the euro area can already be noted as well as some compression in the spreads in this market segment.

Events during the financial turmoil have led initially to severe disruptions in banks' short-term funding. International inter-bank markets have contracted. This is visible on the right-hand side of Figure 6 for the euro area in the strong withdrawals of external deposits, mainly received from banks in the rest of the world. Dislocations in foreign exchange swap markets made developments more complicated. Banks' funding pressures have been compounded by instability in some non-bank sources of funds, notably dollar money market funds which have also contracted in the euro area.

Figure 6





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Developments in loans to the private sector have been at the centre of attention in recent months owing to the possibility of a credit crunch (see left-hand side of Figure 6). Immediately after the start of the financial crisis in September 2008, financial markets were paralysed, and there was a non-negligible risk of a credit crunch in the euro area. With its prompt liquidity support measures, the ECB significantly contributed to avoiding the materialisation of a credit crunch.

As regards current loan growth, there are no signs of a credit crunch in the euro area, even though the annual growth rate of bank loans to the private sector has turned slightly negative recently (-0.3 percent in September 2009). In interpreting this number, it has to be taken into account first of all that these data are somewhat distorted downwards, for instance because they exclude developments in loans that have been securitised, and because the growth rate is affected by base-effects.<sup>9</sup> Moreover, the outcomes from the most recent ECB Bank Lending Survey (October 2009) indicate that the low growth rate of bank loans reflects the still substantial uncertainty prevailing on the economic and housing market outlook. This reduces the demand for loans but also has some bearing on banks' assessment of borrowers' creditworthiness and on their willingness and capacity to lend. But such developments are a normal feature of the credit cycle and cannot be seen as a sign of a credit crunch in the sense of absolutely binding credit rationing. Supply factors such as banks facing problems in financing credit growth, only played a minor role. It also needs to be acknowledged that the low growth rate of loans to corporations is in line with historical evidence, suggesting that the growth rate in these loans lags, rather than leads, turning points in the economic recovery (see Figure 7). Overall, therefore, current developments in the growth rate of bank loans do not signal a credit crunch, and therefore do not call for any immediate policy action.

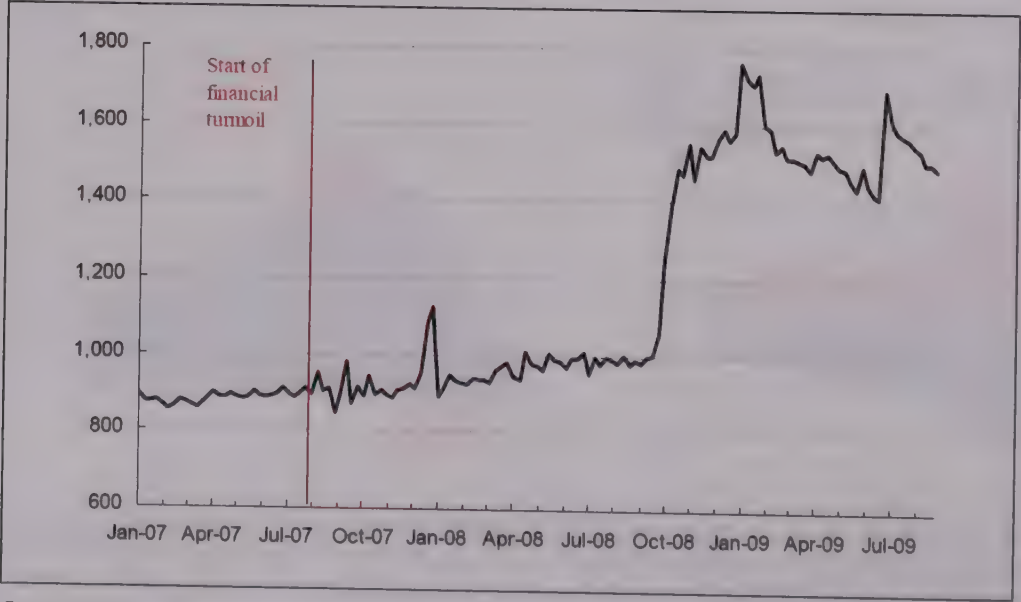
<sup>9</sup> Securitised loans are loans that have been packed and sold by banks as a security, and are taken off their balance sheet, for which reason they do not show up in the banking statistics. The annual growth number is also negatively affected by the strong one-off demand for currency after the Lehman default, which now is dropping out of the calculations (base-effect).

**Figure 7**  
**Growth in real loans to the non-financial private sector and in real GDP**  
(percentages)



Source: ECB.

**Figure 8**  
**The Eurosystem's balance sheet**  
(EUR billions)



Source: ECB.

## Monetary Policy Challenges

While focussing here on the non-standard measures, it is also noteworthy to point out that the decline in policy interest rates since the start of the crisis has caused money market rates and bank lending rates to decline as well, albeit not to the full extent. While there is inertia in passing through the reductions in policy rates to retail lending and deposit rates, the pattern is broadly in line with what has been observed in the past. Thus, the monetary policy transmission seems to be working fairly normal in the euro area.

The vast amounts of liquidity provided to the banking system, also reflected in a rapid expansion of the Eurosystem balance sheet, sometimes cause concerns about their inflationary impact.

In this context, it is first of all important to recall the ECB's main objective of maintaining price stability in the medium term. The ECB has only engaged in interest rate cuts and non-standard measures as upward risks to the inflation outlook were limited. Furthermore, the vast majority of "newly-created" liquidity has so far ended up being parked at the ECB's deposit facility. Thus, the growing balance sheet of the ECB (see Figure 8) reflects the size of its policy measures, but per se says little about the *effects* on the broad economy. It is clear from this observation that ECB's liquidity management has no direct inflationary impact.

However, as soon as the economy tends to recover, firms will face more profitable investment opportunities and increase demands for bank loans. If banks increase their lending activities, their reserve requirements would rise, reducing *ceteris paribus* the amount of "excess liquidity", thereby transforming the balance sheet expansion of the ECB into credit and economic growth, which could in principle entail inflationary risks. The timing of the withdrawal of ECB's enhanced credit support is of crucial importance to avoid such an inflationary scenario. As soon as non-standard measures would create risks to price stability, they will be withdrawn.

## Government crisis management

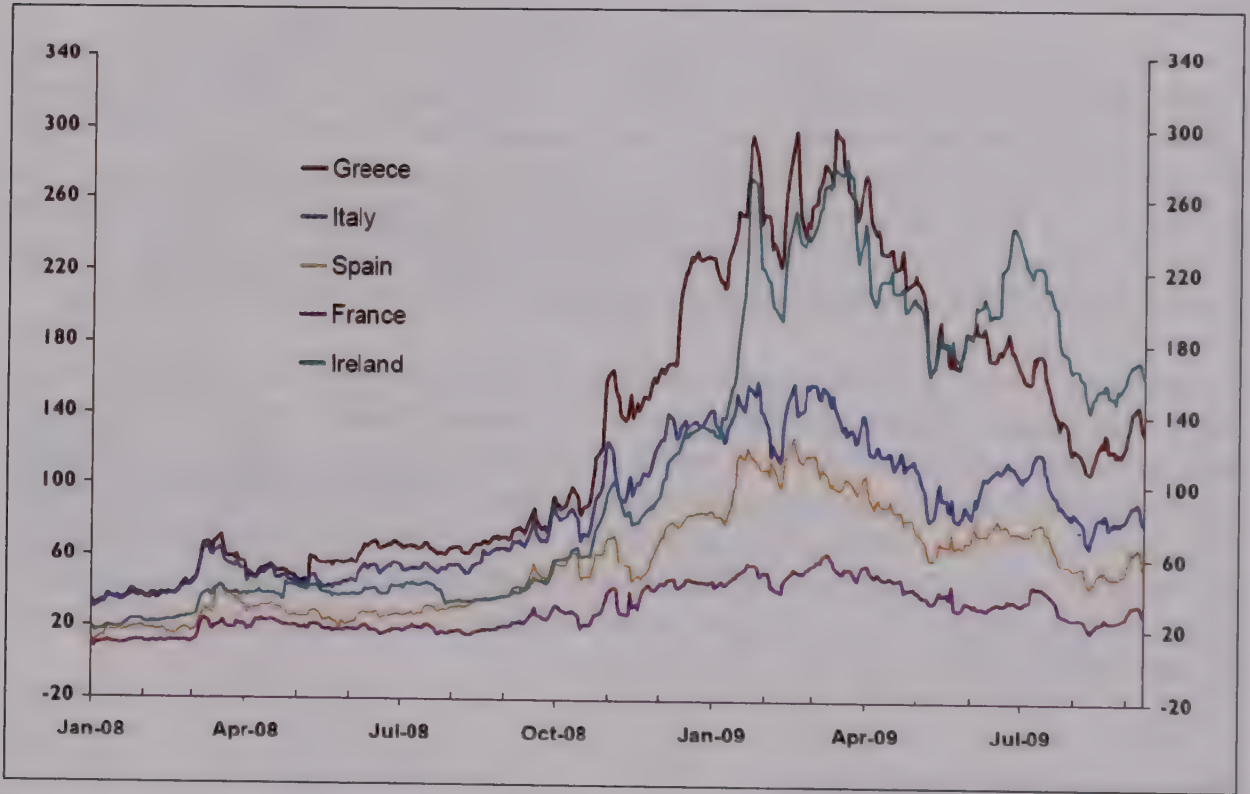
— Fiscal policies in the euro area/EU have played a pivotal role in the stabilisation of the whole financial system and the mitigation of the economic downturn.

The range of fiscal stimuli performed covers government guarantees for interbank lending, recapitalisation of financial institutions, increased coverage of retail deposit insurance and asset relief schemes. In addition, automatic stabilisers played a major role in stabilising the economies. As a result, government indebtedness has increased very quickly. Standing at 69.3 percent of GDP in the euro area in 2008, it is bound to increase to 78.2 percent in 2009 and 84.0 percent in 2010, according to latest Commission forecasts. Even though



broadly appropriate, the current fiscal stimuli cannot be carried on forever. Figure 9 shows the reduced confidence of financial markets in fiscal authorities' ability to return to sustainable fiscal policies. In this regard, the recent ECOFIN Council conclusions, which call for consolidation to start in 2011 at the latest and to go well beyond the structural benchmark of 0.5 per cent of GDP per annum, represent the minimum requirement for all euro area countries.

**Figure 9**  
**Ten year government bond spreads vis-à-vis Germany**  
*(basis points)*



Source: Bloomberg, DataStream and ECB calculations

From a monetary policy perspective, unsustainable fiscal policies carry a great burden for the effectiveness of maintaining price stability, with markets fearing that growing government indebtedness ultimately will affect inflation. In some countries, unsustainable fiscal policies are an upside risk to price stability as it cannot be ruled out that debt-burdened governments may in the end turn to their central bank requesting additional liquidity, or, in other words, resort to monetary financing. Also, governments may press for more inflation as a way to reduce the real burden of government debt.

## Monetary Policy Challenges

Not all central banks are in a position similar to the one of the Eurosystem to withstand such a request. Only firmly-anchored institutional rules can provide a safeguard against such request, as for instance in the case of the Eurosystem where the full independence from political influence and interference is ensured by the Treaty. Likewise, the Treaty unambiguously assigns to the ECB the primary objective of maintaining price stability, providing the ECB clear guidance on how to act. Any deviations from this would immediately be reflected in higher inflation expectations and higher interest rates. While monetary financing therefore is not a feasible option for governments in the euro area, high inflation in other countries may nevertheless also make it more difficult to preserve price stability in the euro area.

### 4. Lessons from the crisis

— While the financial crisis is not over yet, we already need to draw first lessons from the crisis to avoid sowing the seeds for the next one.

### Regulation and supervision

— Weaknesses in regulation and supervision of financial markets have come clearly to the foreground in the crisis. In particular, the financial crisis points at the necessity of a reform as regards the current approach. First, regulation and supervision must be improved in such a way that market participants' incentives are aligned with the risks they take. This includes a proper design of the prudential framework for banks, for the supervisory review of banks' risk management procedures, and rules on compensation and pay. To implement that, even intrusive approaches should be considered.

Second, the regulatory framework should be extended as to cover all systematically important (notably too big or connected to fail) financial markets, institutions and instruments that may pose risks to financial stability. In particular, this includes all large and highly leveraged financial institutions such as commercial banks, investment banks, hedge funds, private equity funds, structured investment vehicles (SIVs), conduits other special purpose vehicles (SPVs) or off-balance sheet entity and credit rating agencies which have typically an international nature and thereby entail a risk of regulatory arbitrage and evasion if not handled in a globally consistent way.

That is why, third, supervision should have a system-wide approach (macro-prudential orientation), that accounts for the complex environment and interwoven networks among financial institutions. The European Systemic Risk Board (ESRB) that has been proposed

by the European Commission is a step into that direction. The ESRB will allow an early identification of potential risks to financial stability, issue warnings where risks appear significant and submit policy recommendations for appropriate action to mitigate and contain the identified risks.

## Monetary policy

— These ties in with the renewed interest in the question of what role central banks should play in contributing to financial stability. Central banks have a great interest in fully functioning financial systems that originates in the key transmission role that financial systems, in particular banks, play in monetary policy.

In today's world where international financial markets are closely interlinked and well integrated, monetary policy may pursue a cautious "leaning against the wind" approach to cope with the possible emergence of asset price bubbles that could burst at high costs in terms of financial and macroeconomic stability.<sup>10</sup> This is neither meant as targeting asset prices nor following an automatic rule. Rather, central banks should consider the possibility of responding to excessive financial asset price movements under certain circumstances, in particular if such movements are driven by capital flows and credit dynamics based on unrealistic market expectations. In this respect, the regular in-depth analysis of developments in monetary and credit aggregates and of their interaction with financial trends is most useful. In particular, by giving prominence to money and credit developments in its forward-looking monetary policy strategy, the ECB's monetary analysis has proven robust in difficult times.


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<sup>10</sup> P. Moutot and G. Vitale (2009)





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# Meir Sokoler

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## The Interaction between Monetary and Financial Stability- Some Lessons for Emerging Economies

### I. Introduction

— Until the current crisis (2008) many academics and policy makers stressed the notion that price stability and financial stability complement each other (one tool one target). According to the conventional view “there is no general trade-off between monetary and financial stability” (Issing, 2003). Likewise it was argued that a central bank “that was able to maintain price stability would also incidentally minimise the need for lender of last resort” intervention (Anna Schwartz, 2000).

The recent crisis, however, vividly demonstrated that a financial crisis can occur even after a relatively long period of world-wide low inflation, in which a growing number of developed countries, and emerging economies have adopted inflation targeting (IT) as their monetary policy framework. In fact, some economists like Joseph E. Stiglitz (2009) argue “that the excessive focus on inflation had diverted attention from the more fundamental question of financial stability”.

The recent crisis, and the reactions to it naturally raise three following questions in this regard:

- What are the possible trade-offs between monetary and financial stability?
- How are these trade-offs exacerbated in emerging economies?
- What can be done to improve the terms of the trade-offs?

The purpose of this paper is to explore the trade-offs and to suggest measures and policies aimed to improve them, with particular focus on emerging economies. In section 2 I discuss how monetary policy actions, which are effective in maintaining price stability, may nevertheless impact adversely financial stability. In section 3 I describe how adverse financial stability conditions will greatly reduce the effectiveness of monetary policy. Section



4 points out some implications of the interaction for regulatory and surveillance systems. I conclude in section V.

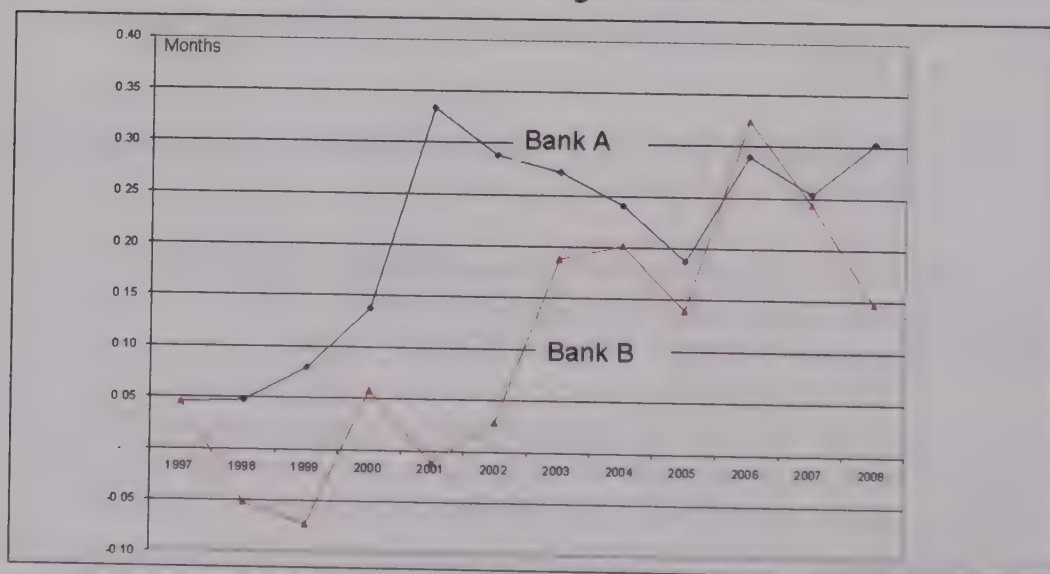
## 2. Monetary policy effects on financial stability

### Maturity gaps

— At present (November 2009), because of the crisis, Central Banks (CB), the world over, have lowered their key policy rates (KPR) to historical low levels. One day, however the crisis will end and the KPR in India and elsewhere will rise in order to guard against possible rising inflation. Some economists are already drawing attention to the spectre of high future inflation (Feldstein 2009). But when this occurs, the banks, both in developed emerging economies, will still find themselves locked into assets, with longer duration than their liabilities, and hence rising refunding costs. The lesson from the S&L crisis in the US in the late 80s, ignited by rising interest rates, is not to ignore this possibility.

Following the long period of historically low interest rates, and a time of greater risk appetite, it is not uncommon to find banking systems with increased maturity gaps such as in table 1 which depict the evolvement over time of the maturity gaps of the two leading banks in Israel.

**Table 1**  
Changes in duration gaps of the 2 largest banks in Israel



Source: The Israeli Banking System, Annual Report 2008

## Monetary Policy Challenges

A question arises then as to what would happen to the financial health of banking systems, if/when the macro economic conditions in general, and the inflation outlook in particular, call for sharp increases in the KPR? Will the level of the banks' capital be sufficient to absorb the losses which might be caused by the rising refunding costs? Should CB's postpone the increase in the KPR and miss the IT now, with the associated loss of credibility so hardly won, in order not to exacerbate the duration risk? This possibility is one example of the trade-off which might exist between monetary policy focused price stability, on the one hand, and the financial stability goal of central banks (CB). This dilemma may be particularly relevant for many emerging economies, with less developed financial markets, where conditions might call for rapid-large changes in the KPR.

### The FX induced-credit risk

— Another example of a possible trade-off between monetary and financial stability has to do with the interaction between warranted changes in the KPR and the effect of such changes on the foreign exchange rate. Assume that a CB makes a timely decision and raises its policy rate in order to resist ensuing inflationary pressures. In many open economies, in which the exchange rate is a major part of the monetary transmission mechanism, much of the anti-inflationary force will come from a FX appreciation. While such an outcome will be favourable and welcomed as far as resisting inflation is concerned, it might simultaneously induce increased FX positions of domestic businesses and households which are not hedged against the FX risk. In the case of a sudden depreciation of the domestic currency, many domestic entities might suffer large balance sheet losses, which in turn may lead to severe credit losses of domestic banks and to systemic instability. The above scenario is not an imagined one but has been occurring time and again in many parts of the world (e.g. Argentina 1997-98, East Asia 2001, Hungary 2009, to mention just a few) where the FX risk was not properly internalised.

## 3. Financial stability affects monetary policy

### The effects on the monetary – transmission mechanism

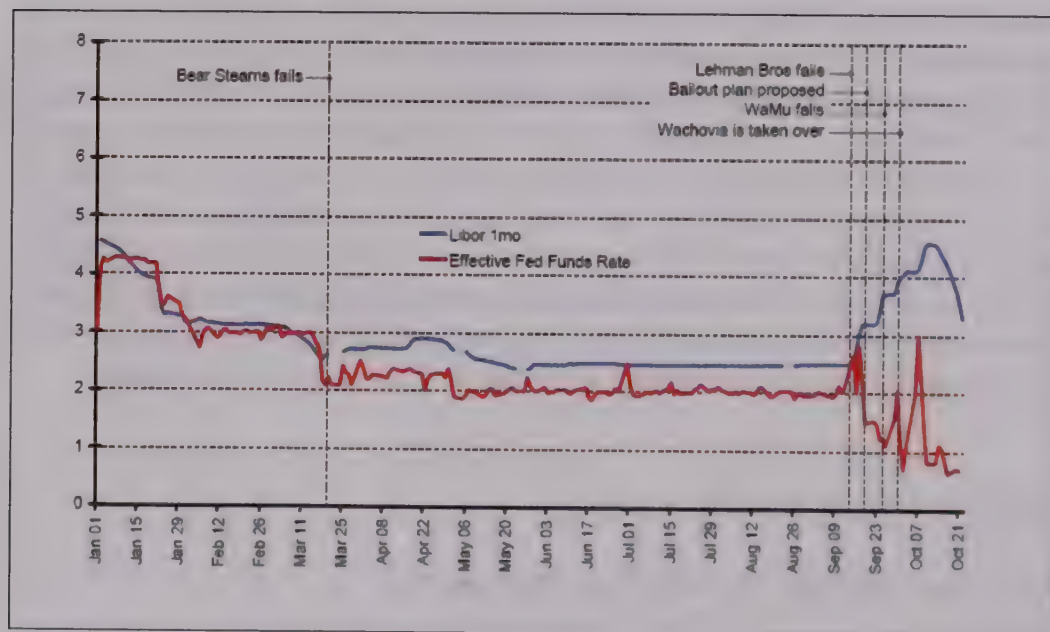
— Modern monetary policy relies on the CB using the KPR to affect other rates in the economy – short and long rates, loans and deposit rates – and other asset prices in the economy (e.g., the exchange rate, share prices, housing, etc.) and through them nominal spending-inflation and real activity.

The effectiveness with which changes in the KPR are propagated efficiently into other rates and the rest of the economy depends on how stable and well functioning

(well oiled) is the monetary transmission mechanism. Put differently, for monetary policy to be effective, the various links of the payment system and financial markets have to operate smoothly. The first link in the chain of the transmission process is the pass thorough from the KPR to very short run interest rates. An effective monetary policy has to rely on very tight relationship between the KPR and the rates in interbank market.

But as can be seen in table 2 the normal very tight link between KPR (the Fed fund rate) and the market rate (LIBOR) was completely broken in September 2008, at the time of the collapse of Lehman Brothers. For emerging economies the consequences of the breakdown of the monetary transmission mechanism were even greater because of lack of alternatives to banks' as sources of finance, and because of their reliance on capital inflows.

**Table 2**  
**Libor and Fed Funds Rates in 2008**



### The effects on monetary policy operations through CB balance sheet expansions

— Prior to financial crisis the day-to-day monetary policy operations of injecting and withdrawing liquidity consisted of selling and buying government bonds on a temporary basis (Repo's and Reverse Repo's) or by outright transactions. In addition, most CB's extended



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loans of various kinds (loans related to interest rate corridors, lender of last resort loans) which were collateralised almost exclusively by government's bills and/or bonds.

As can be seen in table 3, the mode of operations of CB's changed drastically following their need to cope with seizure of the financial system.

**Table 3**  
**Changes in CB operations since 2007**

	Lending Operations				Outright Purchases				Bail-Outs Capital Injections
	More Counter Parties	More Liberal Collat eral	Longer Term	FX Swaps	FX	Equities	Private Debt	Government Debt	
Australia		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Britain		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Canada	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Possible	Possible	
Euro Area		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Possible	Possible	
Japan		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Possible
Sweden	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Switzerla nd		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
USA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Source: *The Economist*, May 2009

There are several important changes which are noticeable, both in kind and degree. First, the circle of CB's counterparties to its transactions and operations has been widened and does not consist any longer of banks alone. Second, the range of assets that CB's choose to transact has been increased considerably and includes not only private debt but in some cases even equity. Third, the scale of CB capital injection to the keep afloat commercial banks, investment banks, insurance companies, as well preventing the collapse of interbank markets (money market) has reached unimagined proportions.

These changes are likely to raise questions regarding the source of CB institutional and legal authority to carry such operations in the future if needed. It is no accident, for example that, prior to the crisis, almost all CB's were lending only against the safest collateral of government bonds. There was a compelling reason for this practice; after all, if CB's are granted operational independence to lend tax-payer money in order to carry out monetary and other operations, then it is only reasonable that these loans be protected by the safest

existing assets. The widening of the range of assets which can serve as collateral beyond governments bonds raises therefore an important institutional issue with possible impact on CB ability to conduct freely monetary policy operations in the future.

Related to the point raised above is the issue of the financial independence of CB. In other words, given the scale and the speed with which CB's had to react in the present crisis, is it not sensible to review the common practice where CB seniorage income is (normally) transferred annually to governments?

### **Volatility of commodity prices**

— An additional source of impairment to the effectiveness of monetary policy, caused by the financial crisis, is through its effects on the collapse of commodity prices and the impact that this has on the governments' fiscal position in commodity exporting countries. For example, the sharp decline in revenues from oil no doubt affected adversely the fiscal positions of countries such as Nigeria. The induced increases in fiscal deficits, the need to rely more on domestic sources to finance them, increased the dangers of monetary policy being threatened by fiscal dominance. Self insurance through accumulation of FX reserves in good years, in order to create a buffer in bad years, have proven only a partial solutions. The reason for this is that during the financial crisis there was a high positive correlation between the yields on the assets in which the FX reserves have been invested and the prices of the commodities.

### **Foreign owned banks**

— The current crisis also unfolded a connection between foreign bank ownership, on the one hand, and the effectiveness of monetary policy on the other hand. If foreign owned banks are important financial players in the domestic economy, and if their lending and borrowing activity is affected more by conditions in the home country than by those in the host economy, then the effectiveness of monetary policy is impaired. In the 2008 crisis, the effect of foreign banks on the monetary transmission process in emerging economies was pronounced. There have been cases where CB in emerging markets, where foreign owned banks play a dominant role, lowered key policy rates (KPR) but this was not followed by a parallel decline of lending rates. The main reason for this phenomenon was that the domestic lending policies of the foreign banks were decided by the mother bank, with little attention being paid to the domestic conditions.

Thus, along with the alluded advantages of the presence of foreign banks, in terms of know-how, better risk management techniques, and the additional resources that they may

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bring to the domestic economy (Ramon and Villar 2005), the proper realignment of their incentives and actions with the needs of the domestic economy is clearly an important policy issue. This need is especially important for emerging economies, who certainly were not the cause for 2008 near financial meltdown, but the ones who particularly suffer from the financial nationalism that was sparked by the crisis.

## 4. Some implications of the interaction for regulatory and surveillance systems

### The CB role in financial supervision

— Central Banks should be playing a centre role (much greater than before the crisis) in financial regulation because:

- a) The interaction of monetary and financial stability implies a need to coordinate between the two sets of policy tools-The KPR tool of monetary policy and supervisory tools such as capital requirements, liquidity requirements and loss provision ratios.
- b) Coordination within one organisation is better than across organisations, as proved by the experience of the BOE and NAS with Northern Rock. Distinguishing between a liquidity and solvency problems are often difficult to make in real time.
- c) The need CB's to extend the Lender of Last Resort Facility to other than banks financial institution (Bear Stern, AIG) also favours leaving the structuring supervision along functional lines rather than along sectoral ones.

This means adopting the bi-polar approach to supervision (the Dutch model) ,where the prudential supervision of the entire financial system is at the CB and the conduct of business regulation is at the local SEC.

### The important role of CB capital

— Adopting the bi-polar model of regulation and supervision requires political backing and sufficient resources, enabling CB's to act timely and on a necessary scale. This, in turn, would require paying much more close attention to topic of CB capital. CB capital is also important because recent enormous changes in the size and structure of several very important CB's raise the risk of political interference and less CB independence. Viewing the CB Capital (mostly seniorage -income accumulation) as cushion to be used in time of economy-wide systemic financial crisis requires reconsidering rules and procedures of transferring CB profits to the government.



## Building up long term sources of finance and the importance of an effective governance structure

### Long term saving and good governance

— Developing domestic long term sources of finance, such as funded pension funds, improve the tradeoffs between monetary and financial stability in several ways.

First, it creates long term sources to finance long term project thus contributing to lessen the maturity mismatch inherent in banking (short term liabilities financing longer term assets). The narrower the maturity gap, the less exposed is the banking system to CB raising the KPR in response to inflationary shocks. That is, the existence of stable long-term savings increases the ability of monetary policy to react as needed with less concern on how it will affect financial stability.

Second, the existence of a steady demand for domestic long term bonds reduces the risk of monetary policy becoming subservient to the needs to finance the government's deficit- a problem common in many emerging economies, and a source of financial instability.

Third, the creation of:

- a) a well developed interbank market,
- b) a developed long term government bond market,
- c) well functioning secondary markets will result, among other things, in a yield curve stretching over a long range of maturities.

This development in turn improves the trade-off between monetary and financial stability in at least two important ways. First, if there is a curve of CPI linked bonds, alongside regular bonds, it provides a source of useful forward looking information on the credibility of monetary policy (Brenner and Sokoler 2009), and source of information on term-risk premia (Soderlind 2006). Second, it enhances the expectation channel of monetary policy (Bernanke 2007) thus increasing the scope for more gradual changes of the KPR, in the face of shocks, thus reducing the likelihood of disrupting the financial markets.

In building up stable and efficient financial markets, it is important to ensure that a proper governance system is in place. For example, it is impossible to overstate the importance of the watch-dog role of the directors of financial institutions, the importance of transparency, and the appropriate structure of financial supervision.

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### Changes in the regulatory attitude towards foreign banks

— In many emerging economies foreign owned banks are the backbone of the local monetary and financial system. In the face of the impact of the financial crisis on their financial system, emerging economies will have to review how to realign better the incentives of foreign owned with the needs of the domestic economy, rather than the needs of the foreign mother company. An important issue in this regard is the future legal basis of their operations, and its impact on the stability-efficiency trade off.

### As pointed out by Goodhart(2009)

— *“I am afraid that one outcome from this crisis may be that national authorities will insist that foreign banks conduct local operations through a separately incorporated local subsidiary. While this will impede efficiency, it could enhance stability and make closure easier. More generally, any bankruptcy plan will have to address knotty issues such as who have closure authority, what the loss-sharing arrangements between countries for closed banks will be, and how foreign operations of domestic banks will be treated. This is something that regulators have to pay far more attention to.”*

In addition there are the issues of governance (e.g. should there be a domestic observer on the board of a local foreign owned bank and how to choose him?), internal control (e.g. how independent are the board the management of the local foreign owned bank with respect to the various risk that are undertaken in the domestic economy) and transparency.

### The importance of a good data infrastructure

— The importance of collecting and analysing timely data with macro-prudential “glasses” is very important. (A supervisor might press a particular bank to lend less during a slump, where as from a macro-prudential point of view this could make matters worse.) It would be meaningless for supervisors to conduct tests of the resilience of the financial system without timely relevant data. Data collection and assessment should not be confined only to the financial sector. It is important to collect data from non financial sectors and from the various relevant sectors of the real economy (both stock and flows data). “Successful innovation will always run ahead of building the structures designed to support them” (Andrew Crocket), but the challenge of policy makers is to reduce this time lag.

## 5. Conclusion

— Among the most important lessons of the 2008 major financial crisis is that successful inflation targeting regimes, which delivered long periods of low and stable inflation rates, are not sufficient to guarantee financial stability. As a consequence, policy makers in general and central banks in particular, have to face the reality that there exist a trade-offs between price and financial stability and at times they will be acute ones.

The present paper attempted to explore the nature of this trade-offs by pointing out the various interactions between monetary and price stability. One clear policy lesson from this analysis is that monetary policy instruments, such as the KPR, aimed at achieving price stability, may simultaneously necessitate adjusting other set of policy instruments (e.g. capital ratio requirements) which are aimed at maintaining financial stability.

The challenge for policy makers is to seek ways which will improve the above mentioned trade-off. This in turn seems to force types of policy analyses which until the 2008 crisis were mostly carried out separately. For example, in considering the timing and magnitudes of interest rate changes in response to an inflation shock, little or no attention was paid in the past to how such changes may induce a widespread substitution of foreign for domestic lending and what it entail for financial stability. Following the crisis this separation is no longer affordable.

Successful inflation targeting remains probably the best framework for conducting monetary policy in many countries, but it will not lead to nirvana. Reality is both more complex and more interesting than we thought just two years ago.

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## Global Financial Architecture





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### 1. Which are the most urgent policy measures to overcome the pre-crisis flaws of the international financial architecture?

— The financial crisis has revealed significant aberrations in the global economy as well as in the international financial system. At the macroeconomic level, global imbalances and a prolonged period of very low interest rates resulted in a significant mispricing of risks and an unprecedented search for yield. In the financial system, distorted incentives, insufficient risk management, and lack of transparency on the part of financial institutions as well as serious flaws on the part of rating agencies led to excessive leverage and maturity mismatches. Supervisory and regulatory authorities failed to detect and mitigate these deficiencies at an early stage. Given the increased interconnectedness and interdependency of financial markets, international cooperation was also insufficient.

However, the international community has risen to the challenge. Shortly after the outbreak of the crisis, G7 Finance Ministers and Central Bank Governors had mandated the Financial Stability Board (then still the Financial Stability Forum) to analyse the causes of the crisis and to set out recommendations for increasing the resilience of financial markets and institutions. This FSB report of April 2008 and further reports issued in April 2009 were an important input to the recommendations by the G20 at their summits in Washington in November 2008, in London in April 2009 and in Pittsburgh in September 2009.

Crucial reform measures comprise:

- **A strengthening of prudential regulation:** The Basle Committee set in place risk and liquidity management requirements. In particular, in September 2008, the Basle Committee published *Principles for Sound Liquidity Management*; in May 2009 it issued *Principles for Sound Stress Testing*. Crucially, in July 2009, the Basle Committee raised capital requirements for trading book activities, re-securitisations, and liquidity lines to asset-backed commercial paper (ABCP) conduits. Recently (September 2009), the oversight

body of the Basle Committee also decided to raise the quality, consistency, and transparency of the Tier 1 capital base, to introduce a leverage ratio and countercyclical capital buffers. The G20 in Pittsburgh endorsed this work programme and asked Finance Ministers and Central Bank Governors to develop concrete proposals by end-2010. The Basel Committee oversight body also decided to introduce by end-2009 a minimum global standard for funding liquidity.

- **A reform of compensation practices:** Important steps have been taken to improve incentives in compensation schemes: In April 2009 the FSB issued *Principles for Sound Compensation Practices*; in September it complemented these Principles by issuing Standards for their implementation. The principles and standards stipulate, for example, that a significant portion of variable compensation will be deferred, tied to performance and subject to clawbacks; they also require that compensation policies and structures are disclosed. These principles and standards are now being implemented at the national level and implementation will be monitored by the FSB (to report by March 2010).
- **A broadening of the scope of regulation:** the oversight and regulation of rating agencies and of over-the-counter (OTC) derivatives markets has been improved. For rating agencies the International Organisation of Securities Commissions (IOSCO) published a strengthened *Code of Conduct* in May 2008, in OTC derivatives markets central counterparties have been established for clearing CDS. Also, for the first time, hedge funds shall now be subjected to appropriate supervisory and regulatory oversight (the IOSCO has published *Principles for Hedge Funds* in June 2009).
- **An improvement in international cooperation:** the FSB and the International Monetary Fund (IMF) have increased their cooperation and will now regularly conduct Early Warning Exercises to detect risks and vulnerabilities in global financial markets as well as develop recommendations to mitigate these risks (on cooperation see also below, section 2) Going forward the international community will, in particular, have to ensure that the agreed reforms are seen through and that the implementation at the national and regional level is consistent, not least to ensure a level playing field.

But developing and implementing a macro prudential approach to supervision remains a challenge. A further crucial area of reform also concerns the risk from financial institutions that are “too big or too interconnected to fail”. Therefore, the FSB is developing measures, which could include additional prudential requirements for systemically important financial institutions and a framework for the resolution of globally active firms. Finally, it is important that international accounting standard setters develop further improved and consistent standards.



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### 2. How could international cooperation between supervisory authorities and regulators be improved?

— Since the outbreak of the crisis the international community has already taken significant steps to strengthen international cooperation between supervisory and regulatory authorities.

Crucial reform measures comprise:

- **Supervisory colleges have been established for over 30 of the global financial institutions identified by the FSB.** The colleges will be a crucial venue for strengthening information sharing among home and host supervisors. The FSB will continue to support the working of the colleges, for example by examining whether best practices, including on information sharing, can be incorporated into a protocol.
- **The framework for cross-border crisis management** has been improved. In April 2009 the FSB issued Principles for Cross-border Crisis Management. An FSB working group is now supporting discussions to develop firm-specific cross-border contingency planning.
- **The G20 framework for fostering the adherence to international standards** will also improve international cooperation. The G20 has made clear that they are committed to address non-cooperative jurisdictions in the areas of tax information exchange, money laundering and terrorist financing and in the prudential area, in order to avoid an unacceptable drain of government resources and regulatory arbitrage. To this end the OECD Global Forum, the Financial Action Task Force on Money Laundering (FATF) and the FSB are all developing robust peer review processes to evaluate the implementation of international standards and to engage jurisdictions of concern. All organisations are committed to assist jurisdictions that lack sufficient implementation due to capacity constraints, in particular through the provision of technical assistance through IMF and World Bank programmes.

### 3. What reform measures are most needed to restore legitimacy and policy scope of the International Financial Institutions (IFIs)?

— In order to strengthen their governance, many international institutions and organisations have already broadened their membership.

Crucial reform measures comprise:

- The FSB's membership has been broadened to include all G20 members. Its mandate for ensuring financial stability and its organisational setup to fulfil this mandate have been strengthened. Since the start of the financial crisis the FSB has reported regularly to the G20 Finance Ministers and Central Bank Governors; as was the practice before the crisis, the FSB has published all its reports.
- Other bodies have also expanded their membership, including the Basle Committee, the IOSCO Technical Committee, and the Committee on Payment and Settlement Systems (CPSS).
- The IMF has taken important steps to increase the inclusion of financial sector issues into its bilateral and multilateral surveillance, including by reforming the Financial Sector Assessment Programme. The Pittsburgh summit has also added an important new aspect to the IMF's surveillance agenda by tasking the IMF within the new Framework for Growth to assist the mutual assessment of national economic policies with regard to their consistency with a sustainable and balanced global growth and to provide regular reports to the G20 and the International Monetary and Finance Committee (IMFC).

The international community furthermore tripled the funds available to the IMF, and the Fund has proved remarkably flexible in adapting its lending framework to new circumstances, for example by creating the Flexible Credit Line. The international community is also committed to strengthening IMF governance, including by shifting quotas to dynamic emerging and developing countries.

Finally the international community is committed to an open, transparent and merit-based selection process for the heads and senior leadership of all IFIs. It is now important to implement and then evaluate experience with the agreed reforms.

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### The Future of the Global Financial Architecture: Indonesia's Perspectives

— Just about a decade ago, Indonesia was considered a basket case. Today, Indonesia has not only survived the catastrophic financial crisis and a political calamity in 1998, it has now turned into a stable democracy with a robust economy, says *The Economist*, in its 15-page report titled “A Golden Chance” of September 12, 2009 edition. Highlighting the success this country has made in the past decade, the London-based weekly reports that Indonesia has managed to achieve a remarkable turnaround in a relatively short period of time, and with its impressive growth, it can now be considered as a serious fast-growing emerging economy along with BRIC countries – Brazil, Russia, India, and China.

Nonetheless, the recent crisis that has spread globally has adversely magnified toward emerging economies, wherein Indonesia has not been an exception. This is a consequence of the increasing importance role of such emerging economies in the global economy through their increasing contribution in both international trading transactions and international financial activities. Therefore, the recent financial crisis has given an important lesson that in supporting global economic growth sustainability, the stability of global financial is an essential prerequisite to be maintained. Financial markets have become globally integrated and, consequently, problems in a market in one country have rapid contagious effects on other markets in other countries. Hence, it is urgently to find ways for regulators to exchange more relevant information across borders on a timely basis. It also should be viewed that with the systematically increasing role of emerging economies, it is becoming more important to have them actively involved in global financial stability issues, including the initiatives to establish global financial reform measures and new international cooperation schemes, to produce substantial benefits for the global financial systems. It is widely recognised, that facing the global financial crisis, countries around the world have struggled to prevent the fallout in financial markets from spilling over to the real sector. A wide range of policy measures have been adopted. However, we should take note that individual and uncoordinated actions lead to financial protectionism, which in turn would dampen the recovery of global financial markets. Global cooperation will therefore be



beneficial to all countries, not only since it can prevent financial protectionism, but also since it may expedite the stabilisation of the financial markets.

In the wake of the global financial Tsunami, we have taken the view that to respond effectively we first had to understand that the crisis was not a stand-alone event. It was the cumulative effect of many years of macro, financial, and regulation policy choices – many of which were beyond our borders and beyond our control. In particular, the crisis shows us the limitation of the “invisible hands” in the real global economy, apparently in the demise of Lehman Brothers, Bear Sterns, and other major financial houses, and along with them the hard earned savings of many millions of people. The balance sheets of financial institutions were under pressure due to dry up of liquidity, exchange rate volatility, increasing non-performing loans (NPLs), and huge erosion of capital. This has triggered panic behaviour due to increase risk perceptions globally. This in turn has victimised emerging countries due to capital outflow and increase risk perceptions. Their corporate and sovereign bond yields were pushed upward, and their local currencies and stock indexes were plunged. The crisis in the financial sector was then transmitted to the real sector. The disruption of credit channel has caused widespread economic downturn due to slower consumption and dropped global aggregate demand.

Moreover, the recent financial crisis has some distinctive features that might not allow the government to merely rely on conventional policies. In a normal time, the banking sector and its intermediary function have always been the focus of our attention. The central bank uses the monetary operations to affect market interest rates and thereby manipulating how the economy works. During this time of market failure, however, we need to expand the central bank intermediary function to offset the decline of banking sector intermediation, and some unconventional approach might be needed to cleanse the balance sheet of financial institutions.

To deal with efforts of renewal international cooperation between supervisory authorities and regulators, first of all we have to admit that there was a mismatch between regulation and innovation in global financial business. As we have witnessed from the crisis chapter, unregulated global financial markets had fuelled irresponsible efforts to create financial innovations, many without proper value assessment. On the other hand, a long period of very loose monetary policy, under-assessment of risk, and persistent global imbalances, has provided ample liquidity that triggered the bubble in the financial sector. These factors combined with moral hazards of the financial managers and decision makers had created excessive risk taking behaviour. When the bubble burst, the whole global financial systems were disrupted. Therefore, Indonesia has taken clear stance to overcome the pre-crisis flaws of the international financial systems through

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several policy measures. We basically agree to the vast majority of the Action Plan set out in the London Summit of G-20 on April 2, 2009, with some notable undertaking, including:

- the extension of regulation and oversight coverage to all systematically important financial institutions and instruments, including hedge funds;
- the strengthening mandates and the expansion of the Financial Stability Board (FSB);
- the incorporation of host supervisors from emerging market economies (EMEs) in the supervisory college;
- the call for tough regulatory and oversight to all credit rating agencies to ensure that they prevent unacceptable conflicts of interest;
- the endorsement to implement compensation scheme to cut down some of the risky behaviour;
- the call for improved accounting standards, particularly in valuation and provisioning, and a harmonized set of high-quality accounting standards by the standard setters;
- the commitment to remove obstacles for international exchange of bank information, including the adoption of Organisation for Economic Cooperation Development (OECD) Tax Information Model; and
- the initiative against non-cooperative jurisdictions.

We also strongly felt that we need changes to the global financial architecture. In our view, multilateral development banks should have filled the void left by the flights of funds to the U.S., Europe, and other developed countries. In this respect, international financial institutions have been reasonably expected to deliver stability as global public goods. They appear, however, that while having the unique position.

International Financial Institutions (IFIs) have fallen short of members' expectation with global stability being jeopardised, and the recurrence of future crisis might not be ruled out. Following is a detailed description of Indonesia's stance of reform measures most needed to restore legitimacy and policy scope of the IFIs.

- All IMF country members should be treated even-handedly. The issue of even-handedness rises from the inability of IMF to convince developed countries on its policy recommendations. This asymmetry arises due to the fact that developed countries have no obligation to follow its advice since they are no longer borrowing countries. Nevertheless, we should not lose sight that the world economy now has been globalised and integrated with its spillover effects prevailing all over the world. Hence, there is urgency for the Fund to devise a mechanism to ensure that systematically important members be put under enhanced surveillance.



- As the recent crisis putting the International Monetary Fund (IMF) and Multilateral Development Banks (MDBs) back to its lending business, the issue of adequacy of resources raises to the surface. As a member of the G-20 and as co-chair with France on the Working Group on multilateral development bank reform, Indonesia has pushed the case for a recapitalisation of MDBs and Regional Development Banks (RDBs). This resulted in a tripling of the Asian Development Banks (ADB's) capital, which was secured at the ADB Annual Meeting in Bali, May 2009. We also advanced the case for improved governance and quota arrangements.
- The IMF has been equipped with a range of lending instruments, geared toward helping members coping with balance payment problems stemming from the current account. It also launched a new lending instrument in October 2008, the Short-term Liquidity Facility (SLF), in response to the crisis. However, the onerous conditionality's attached to the instruments has discouraged members to make use the facilities. In addition, despite the efforts to improve its lending instruments, borrowing from the IMF is still perceived to be unfavourable due to the prevailing stigma associated with. In view of the facts, Indonesia has provided support to the proposals (i) to shorten the disbursement process, (ii) to provide credit line with no ex-post conditionality's, (iii) to differentiate the cost of borrowing (charges), wherein a lower rate may be charged to the use of fund by countries experiencing difficulties due to the spillover effect of the crisis, and (iv) to establish better communication strategy to avoid misconception that the new instrument may not be worth considering.
- To regain its relevance, legitimacy, and credibility, the IMF should also reform its governance structure. The Fund apparently has paid no serious attention to issues surrounding governance considered essential by emerging markets and less developed countries. In this regard, we took the view that to fulfil its mandates in an efficient and effective way, the Fund should (i) improve the representation on the Executive Board, (ii) reduce the voting threshold on critical decision, and (iii) not confine selected Managing Director candidates from particular regions.
- To produce early warning of macro-economic and financial risks and to address actions needed, the Fund should establish effective collaboration with the strengthening Financial Stability Board (FSB).

Back home, each government should pay serious attention to do their domestic works. For Indonesia, learning from the 1997-1998 crises, we have found this to trigger the overhaul of the financial sector. The current government has continued with fiscal and financial reforms, including a massive program to reform the bureaucracy. We accelerated government spending, extended the provision of credit and lending instruments to Small and



## Global Financial Architecture

Medium Sized Enterprises (SMEs), and supported the banking and capital market systems by increasing government funds and offered a limited deposit guarantee scheme. The Indonesian government took swift and determined action to ensure foreign exchange stability with two major swap facilities with China and Japan. In the forefront, the supervisory and enforcement capacity over financial institutions and capital markets have been strengthened. And the Central Bank in particular has systematically lowered the interest rates. In the area of monitoring, Indonesia maintains a firm position that credit rating agencies, fund managers, and those offering products such as hedge funds require our continued close monitoring. Thankfully that in the recently released government bond rating by Moodys, Indonesia has been improved to a better rate.

Admittedly, the Leaders Summit in Pittsburg on September 25, 2009, has come to a more optimistic view of global economy and financial condition. But despite some promising signs of recovery, the global economy is still fragile. Therefore, this is a time for the greatest need to work collectively and collaboratively. Regardless the pain brought by the financial crisis, world should take it as a golden opportunity to reform the global financial architecture. We must ensure the right balance between supports to market dynamism and product innovations in one hand and the need for highest standards of supervisory and regulation in the other hand. Also we should not forget to ensure even-handedness with the surveillance of developed and emerging economies as well. Moreover, world leaders should not only take credit for pulling the economy back from the brink, but also pledge to work together to build a new world order of tighter financial regulation and more inclusive global governance to protect the world from future meltdowns. The G20 as a new emerging coalition in global economic order is facing high expectation to become the premier forum for international revolutionary breakthroughs to fix the imbalances and to tackle global economic issues in the future. In this respect, Indonesia as a member of the G20 would particularly work with Association of Southeast Nations (ASEAN) countries to push through the global reform agenda.



# Conference Programme

November, 11-12, 2009

Gulmohar Hall, India Habitat Centre, Lodhi Road, Delhi

## 11 November 2009 (Wednesday)

09:00-09:30	Registration
09:30-10:30	<b>Inaugural Session</b>
09:30-09:40	Words of welcome by <b>Rajiv Kumar</b> , Director and CE, Indian Council for Research on International Economic Relations (ICRIER)
09:40-09:50	Special address by <b>Benno Graw</b> , Financial Counsellor, Embassy of the Federal Republic of Germany, Mumbai
09:50-10:00	Overview of the conference by <b>Günther Taube</b> , Head of Department International Regulatory Framework, Good Governance, Economic Policy, InWent – Capacity Building International, Germany
10:00-10:30	Inaugural Address by <b>Ashok Chawla</b> , Secretary, Ministry of Finance, GOI
10:30-10:45	Tea / Coffee
10:50-13:00	<b>Session I: The Future of Financial Sector Reforms</b> <b>Chair: Rajiv Kumar</b> , Director and CE, ICRIER <b>Speakers:</b>
10:50-11:10	<b>K. P. Krishnan</b> , Joint Secretary, Ministry of Finance, India
11:10-11:30	<b>B. D. W. A. Silva</b> , Assistant Governor, Central Bank of Sri Lanka
11:30-11:50	<b>Paul Joseph</b> , I.E.S (retd), Principal Advisor, MCX Stock Exchange
11:50-12:45	Discussion, question and answer
12:45-14:00	Lunch



14:00-17:00	<b>Session 2: Strengthening Regulatory Surveillance</b>  <b>Chair:</b> Hans-Bernd Schaefer, Professor at the Bucerius Law School, Hamburg  <b>Speakers:</b>
14:00-14:20	<b>Ashima Goyal</b> , Professor at Indira Gandhi Institute for Development Research, Mumbai
14:20-14:40	<b>Meir Sokoler</b> , Member of the Board of the Israeli Supervisory Authority, International Monetary Fund (IMF) Advisor, former Deputy Governor of the Bank of Israel
14:40-15:00	Tea / Coffee
15:00-15:20	<b>Dayanand Arora</b> , Visiting Professor, ICRIER and Professor, University of Applied Sciences (HTW) Berlin, Germany
15:20-15:40	<b>Nicolas Véron</b> , Resident Scholar, Bruegel, Belgium
15:40-16:00	<b>A. V. Raja</b> , Reader, Department of Economics, University of Hyderabad
16:00-17:00	Discussion, question and answer

## Conference Programme

12 November 2009 (Thursday)

09:00-09:30	Tea / Coffee
09:30-12:15	<b>Session 3: Monetary Policy against the Backdrop of the Global Financial Crisis</b>
09:30-09:50	<b>Chair: Madhusudan Mohanty</b> , Head of Macroeconomic Monitoring, Monetary and Economic Department, Bank for International Settlements (BIS)
	<b>Speakers:</b>
09:50-10:10	<b>Deepak Mohanty</b> , Head of Economic Policy, Statistics and Information Department, Reserve Bank of India
10:10-10:30	<b>Raja Syamsul Anwar</b> , Deputy Director, Monetary Assessment and Strategy Department, Bank Negara Malaysia
10:30-10:50	Tea / Coffee
10:50-11:10	<b>Victor Munyama</b> , Research Department, South African Reserve Bank
11:10-11:30	<b>Wolfgang Modery</b> , Advisor in Monetary Policy Stance, European Central Bank, Frankfurt
11:30 - 12:15	Discussion, question and answer
13:15-14:15	Lunch
14:15-17:15	<b>High Level Panel Discussion: The Future of the International Financial Architecture</b>
	<b>Chair: Ashok Kumar Lahiri</b> , Executive Director, Asian Development Bank
	<b>Speakers:</b>
14:45-15:00	<b>A. V. Rajwade</b> , Former Director, CRISIL, India
15:00-15:15	<b>Salman Shah</b> , Former Minister of Finance, Pakistan
15:15-15:30	<b>Hekinus Manao</b> , Deputy Minister of Finance of the Republic of Indonesia; member of the G20 Working Group on Enhancing Sound Regulation and Strengthening Transparency

15:30-15:45	<b>Stefanie Wolff-Hamacher</b> , Senior Economist, International Financial Markets, Financial Stability Board, Federal Ministry of Finance, Germany
15:45-16:00	<b>Stephany Griffith-Jones</b> , Financial Markets Director, Initiative for Policy Dialogue, Columbia University
16:00-17:00	Discussion, question and answer
17:00-17:15	End of conference with a vote of thanks by <b>Ina Dettmann-Busch</b> , Senior Project Manager, Economic Policy/Good Governance, InWent – Capacity Building international, Germany
17:15-17:30	Tea / Coffee



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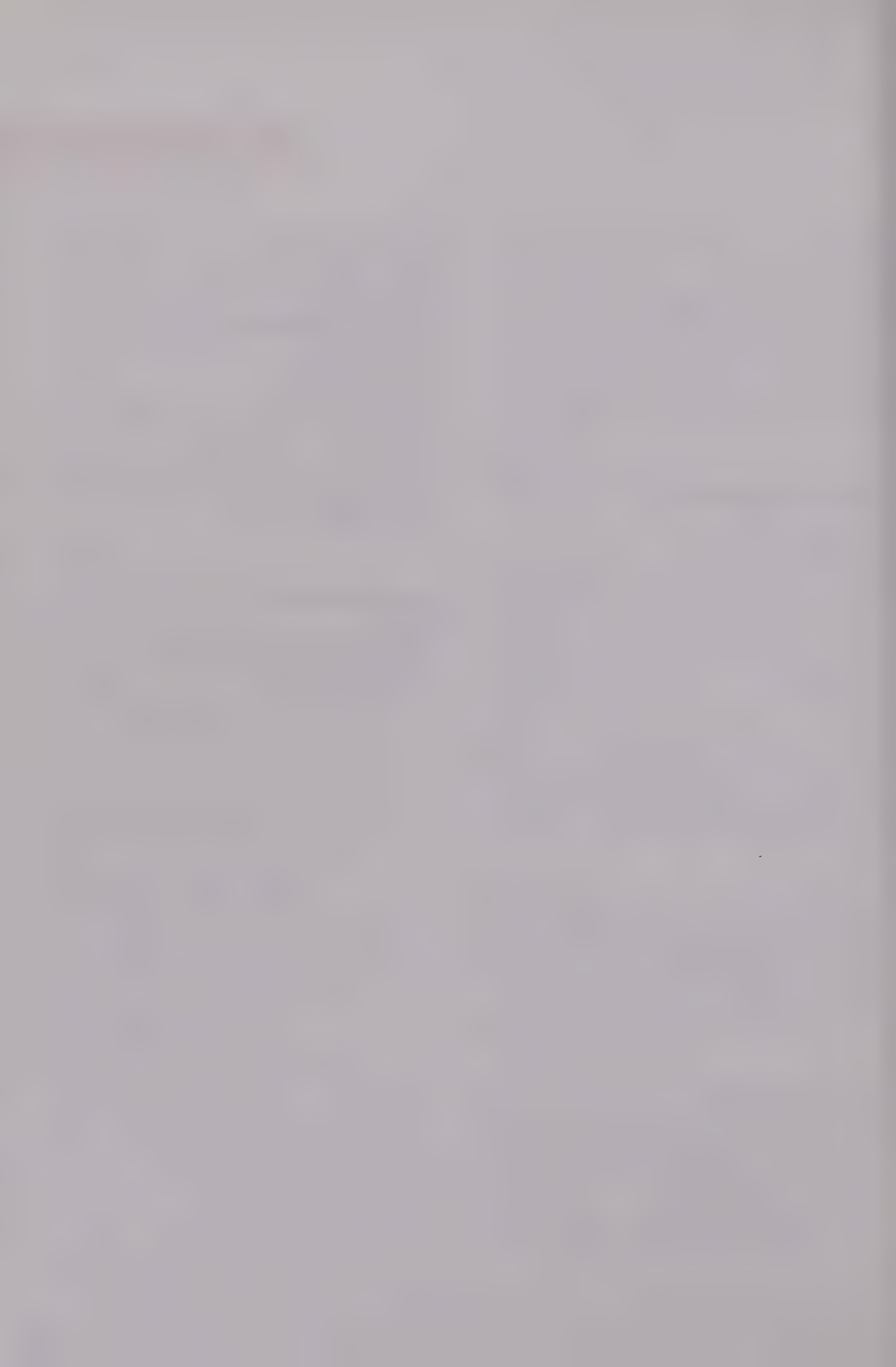
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